FIRST AERO WEEKLY IN THE WORLD

FLIGHT

A JOURNAL DEVOTED TO THE INVENTION, PRACTICE, AND PROGRESS OF AERIAL LOCOMOTION AND TRANSPORT.

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM.

No. 1045. (No. 1. Vol. XXI.) Registered at the General Post Office as a Newspaper. JANUARY 3, 1929. Sixpence Weekly.

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4

DIFFERENT ENGINE INSTALLATIONS

The extensive adaptability of the Fairey III.F. aircraft is already well-known. The photograph above, however, shows this adaptability extended to a still further degree, by the variety of engines that can be installed, each III.F. aircraft being fitted with a different type of engine, namely, Napier "Lion" XI, Rolls-Royce "F" type, Bristol "Jupiter" VIII, and the Lorraine 12 Ed. The general utility and high efficiency of the Fairey III.F. is already confirmed by the large numbers in use with the Royal Air Force at home and overseas, and with the Air Forces of the Dominions, and of Foreign Governments.

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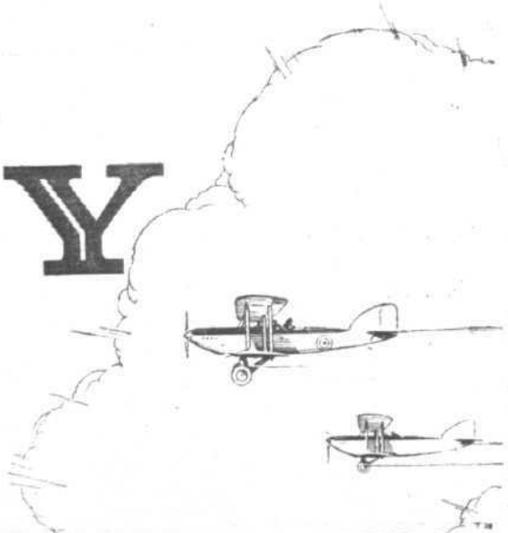

FLIGHT

The AIRCRAFT ENGINEER & AIRSHIPS

First Aeronautical Weekly in the World. Founded January, 1909

Founder and Editor : STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

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Flight

The Aircraft Engineer and Airships

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CONTENTS

DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list—

1929

Jan. 11.... Conference of the F.A.I., Paris
May 21.... Northampton Air Pageant
June .... Rotterdam International Air Meeting
July 13.... R.A.F. Display at Hendon
July 16–27 7th International Aero Exhibition, Olympia
Oct. 31.... Guggenheim Safe-Aircraft Competition Closes

EDITORIAL COMMENT

TAKING it all around, the year which has just come to a close was not a bad one for British aviation. That it might easily have been a great deal better is perfectly true, but also it might well have been a good deal worse. The year has seen all our aircraft construction firms survive, if nothing more, and has even witnessed the establishment of one new aircraft firm, Simmonds Aircraft, Ltd., at Southampton. That the British aircraft industry would be in a much better state if continuity of orders could be ensured goes without saying, and as this is the time for making resolutions, it might not be a bad idea if the Air Council were to review the situation and make a serious attempt at establishing a new system whereby aircraft firms might be ensured a steady inflow of work, instead of the spasmodic issue of orders at present in force, and which results in our firms spending their existence alternating between hectic activity and, comparatively speaking, total idleness.

1928

The danger of premature standardisation, a serious consideration some years ago, is growing steadily smaller as design and construction settle down, and frankly, we doubt if there is any serious likelihood of any startling new discoveries being made which might make it unwise to consider a policy based upon the spreading of orders over a definite period of years, such as three or even five. One result would be that the nation would get better value for its money, as the aircraft constructor would at least know how he stood, and could plan accordingly, instead of being compelled to face twice a year the problems of obtaining good workers when the orders came in and of having to release them upon the completion of the contract. Surely it is possible to foresee with a fair degree of accuracy the likely requirements of the next few years.

From the technical point of view, 1928 has been a year of considerable interest. A very large number of new machines were produced, most of them of military type, and nearly all showed a satisfying increase in performance and other desirable qualities. The

position is much less satisfactory as regards commercial aircraft. Of new commercial types but two were produced during the past year, of which one was a flying-boat and the other a landplane. The Short all-metal "Calcutta," fitted with three Bristol "Jupiter" engines, was produced in three specimens, and the type has proved a very good machine, and will be put on the Mediterranean route during the present year. The only new type of landplane produced during 1928 was the Vickers "Vellore" freight carrier, with Bristol "Jupiter" engine. This machine has probably the greatest pay load for its power of any aircraft ever produced, but practical experience with it cannot yet be quoted, although doubtless during the coming spring and summer the machine will be thoroughly tried out under actual operating conditions.

The de Havilland "Hawk Moth" monoplane has been finished, and is thus, strictly speaking, a 1928 production, but it will not be type-tested and finally approved until the early part of this year, so that at the present moment this machine does not represent a definite item to be put down to the credit of the past year.

Aero engine development has been gratifyingly good during the past twelve months. In the higher powers the new types are for the most part developments of previous models, and have given Britain a very excellent range of engines indeed, water-cooled and air-cooled, direct drive and geared, supercharged and naturally aspirated. Two definitely new high-power types have, however, been produced, or at least finished off, in 1928: The Beardmore "Tornado" heavy-oil engine to be used in the airship R.101, and the Armstrong-Siddeley "Leopard" radial air-cooled engine of 700 h.p.

In the lower powers several new types of engine have appeared. The de Havilland company have produced and put into service the "Gipsy" engine of some 100 h.p., and have been developing the "Ghost" to the point where it is about to pass its type tests. A new "Cirrus" engine, the series III, has passed its type tests and become standardised and extensively used, while one or two still newer types are rumoured to be under way. These, however, must be regarded as 1929 productions.

Of slightly lower power are two other new types developed and type-tested during 1928: The Pobjoy radial air-cooled geared engine is described and illustrated in the present issue of FLIGHT, and the A.B.C. "Hornet" was described some time ago. The latter is also an air-cooled light 'plane engine, but is unusual in being a double "flat-twin," *i.e.*, with its two cylinders on each side in line with each other. Both engines promise well, and will probably come into general use during the coming summer.

To our way of thinking, the outstanding technical feature of 1928 was the development of all-metal construction. For the last two or three years firms have been hard at work evolving new forms, and it can now be said that every British aircraft construction firm has "selected" types of construction, which are all good practical propositions. A healthy sign is that the variety of these types of construction is very great, scarcely any two different firms using the same forms, so that experience is being accumulated along a number of lines. This cannot but be of great benefit, and the work done has placed Great Britain in the very forefront in the matter of using the various structural materials to the best advantage. Forms of metal construction have been proved practical engineering propositions which but a few years ago had the deceptive appearance of being suitable for nothing more than laboratory work on a somewhat large scale, and British metal structures show a refinement not to be found elsewhere. Altogether the technical aspect of 1928 can be written down as eminently satisfactory.

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China as a Market

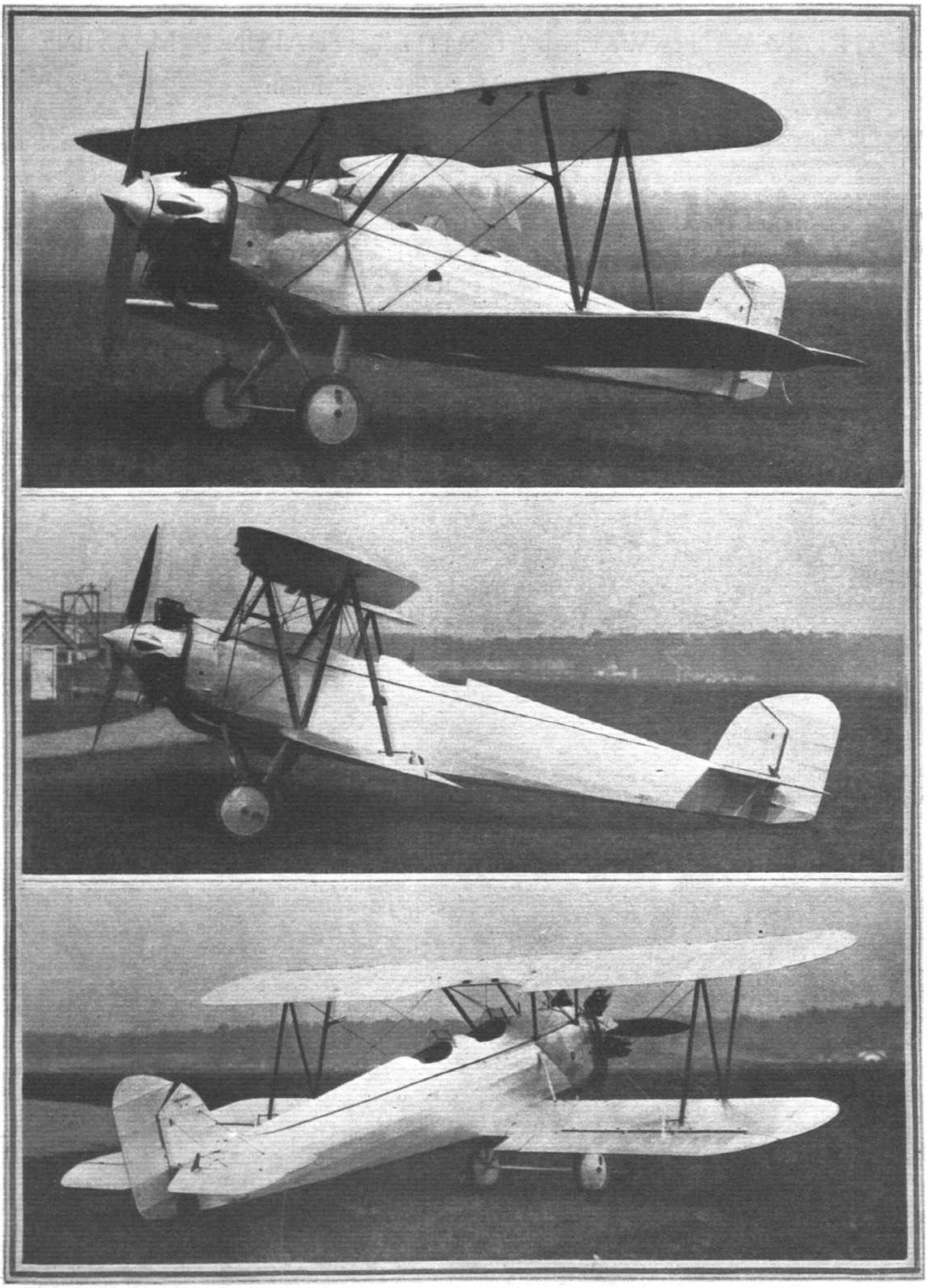
So far British firms have not had a great deal of experience in marketing their machines in China, and what little experience has accumulated has not unfortunately, always been very promising. The signing of the new treaty recently, however, should considerably change the conditions of carrying out trade and business in China, and as foreign countries, notably France and Germany, have already done a good deal of spade work in trying to establish sound connections, no time is to be lost if Great Britain is to hold her own.

We have recently received from a Hong Kong correspondent some interesting communications, which all point towards not only the possibility but the feasibility of introducing British aircraft in China. The distances to be covered are great. The existing means of travel are relatively slow, and business people in China are quite prepared to support any form of transport which will save time.

As an instance of what an air line might accomplish, our correspondent quotes the case of a traveller wishing to go from Hong Kong to Hankow, for instance, by surface transport. Leaving Hong Kong on the fourteenth of the month, the traveller would arrive at Shanghai on the 19th. The departure from Shanghai would have to be made at midnight, on the day of arrival, and Hankow would be reached on the 24th. Even admitting the possibility of a faster boat being available, the trip would still have taken 8 or 9 days. If it is supposed, our correspondent says, that an air line is operating, and that the traveller leaves his home in Hong Kong at 7 a.m. to go out to the aerodrome at Kai Tak, he would arrive there in good time to catch the machine leaving at 8 a.m. About noon, the traveller would be about half-way to his destination, and after a halt of one hour for lunch and replenishment he would be on his way again, reaching Hankow aerodrome between 4 and 5 p.m., and the city an hour or so later. The air traveller would thus have made the trip in almost exactly the same number of hours as the surface traveller would take days!

Our correspondent states that business houses in China are willing to put up capital for services. Those with some slight aviation experience in China prefer British aeroplanes and seaplanes, even if they are somewhat more expensive than certain foreign products. What is wanted is concerted action on the part of British firms, before other nations become firmly established.

Machines with a fairly high cruising speed are required to fight the monsoon winds, and a duration of seven hours should be aimed at. Seaplanes and flying-boats should prove particularly suitable owing to the numerous waterways. The climate, particularly in the south, is very damp, and this should be kept in mind in the form of construction used. Our correspondent is familiar with Chinese conditions, and is an old pilot with a thorough knowledge of aviation, so that his advice should be worth following. But instant action appears to be required if a potentially promising market is not to be lost.



["FLIGHT" *Photographs*

A NEW TRAINING MACHINE: Three views of the Hawker "Tomtit" all-metal biplane. Note the pronounced stagger and slightly backswept wings. The engine is an Armstrong-Siddeley "Mongoose"

THE NEW HAWKER "TOMTIT" TRAINING MACHINE

Armstrong-Siddeley "Mongoose" Engine

DESIGNED for a competition held by the Air Ministry for a training machine for use in the Royal Air Force, the new Hawker low-power biplane which we illustrate this week is of interest in that it incorporates a number of features and equipment not usually found on such low-powered aircraft. In addition, the machine is of all-metal construction throughout, except for the fabric covering.

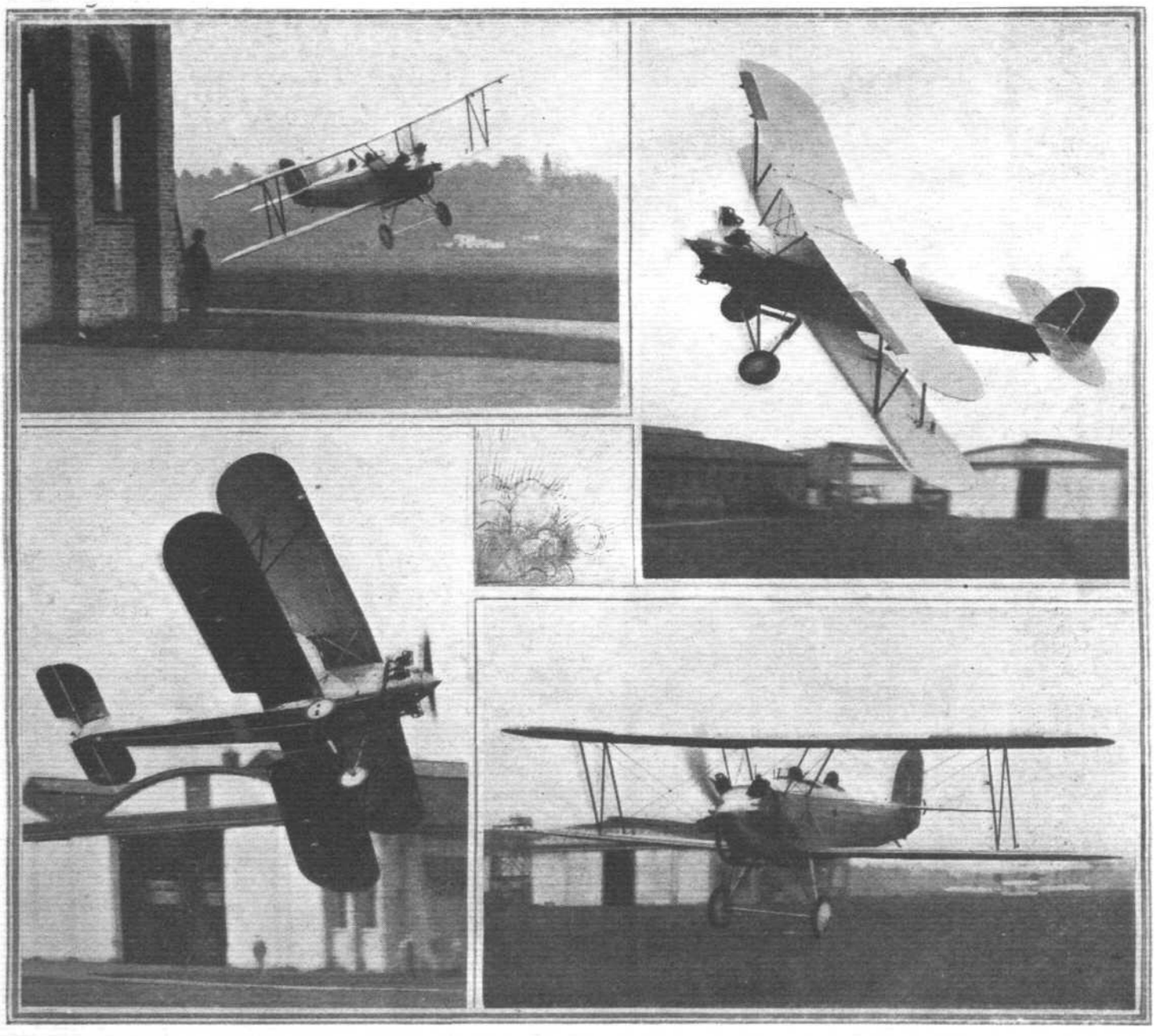
A normal biplane in aerodynamic design, the Hawker machine is characterised by a very pronounced stagger, the chief object of which is to provide good view from both cockpits, as well as to make it possible for the occupant of the front seat to make effective use of his parachute. The forward placing of the top plane and the cut-out in its trailing edge leave the space free above the front cockpit. To make up for the heavy stagger, the wings are given a slight sweep-back.

A complete set of instruments is fitted in each cockpit, so that both instructor and pupil is well equipped, and include Reid turn indicators of special type so as to make the machine suitable for teaching pupils to fly in darkness or cloud. A special hood is also provided which shuts out all view from the cockpit, the object being to teach a pupil to fly by instruments entirely. Handley Page automatic slots are fitted, and it is reported that the machine cannot be made to spin when these are in operation. (The first test flights were made with the slots locked in the closed position.)

The Hawker training machine has a steel tube fuselage, the longerons being of the typical Hawker type in which flats are formed on the round tubes at the points of the strut attachments in order to allow simple plate fittings to be used.

The wings have steel tube spars of a type evolved by the Hawker company, formed from a large-diameter circular-section tube, the section of which has been changed into one that may be described as resembling a double figure-of-eight.

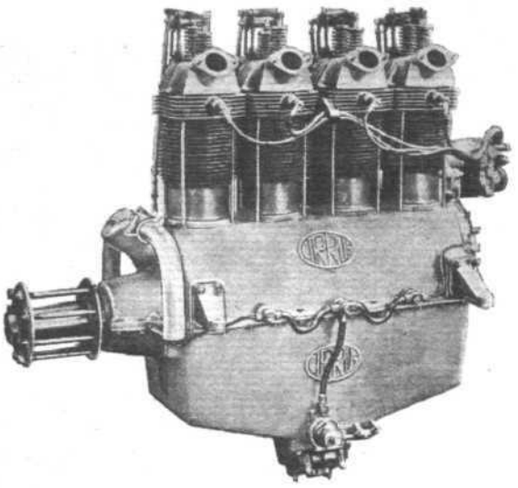
The engine fitted in the Hawker training machine is an Armstrong-Siddeley "Mongoose" of 120 h.p. This, as our readers will probably know, is a 5-cylinder radial air-cooled engine, with cylinders and pistons similar to those of the "Jaguar" and "Lynx" engines. The petrol feed is by gravity from a tank in the deck fairing ahead of the front cockpit.



["FLIGHT" *Photographs*

THE HAWKER "TOMTIT" IN FLIGHT: Mr. Bulman shows various aspects of the new training machine

LONDON TO SOUTH AFRICA.



THE "CIRRUS" AGAIN

THE CIRRUS Mk. III REPEATS THE SUCCESS OF THE CIRRUS Mk. II IN MAKING A NO-TROUBLE FLIGHT FROM LONDON TO SOUTH AFRICA.

Lt. R. R. Bentley, M.C., A.F.C., flying a "CIRRUS-MOTH" (Mk. III engine) landed at Pretoria on December 22nd, having flown from LONDON with Mrs. Bentley as passenger.

Lt. Bentley made the pioneer Light Aeroplane flight from London to South Africa, and this is the third occasion on which he has successfully completed the journey between London and South Africa flying the same "CIRRUS-MOTH" Light Aeroplane.

On the first two flights the engine was a CIRRUS Mk. II, but on this last flight Lt. Bentley used a CIRRUS Mk. III.

All subsequent flights between London and South Africa on Light Aeroplanes have been made on CIRRUS engines as follows :—

Lady Heath - - - - - - -	"CIRRUS - AVIAN."
Lady Bailey - - - - - - -	"CIRRUS - MOTH."
Lt. Murdoch - - - - - - -	"CIRRUS - AVIAN."

SPECIFY A CIRRUS ! *The Proven Light Aeroplane Engine.*

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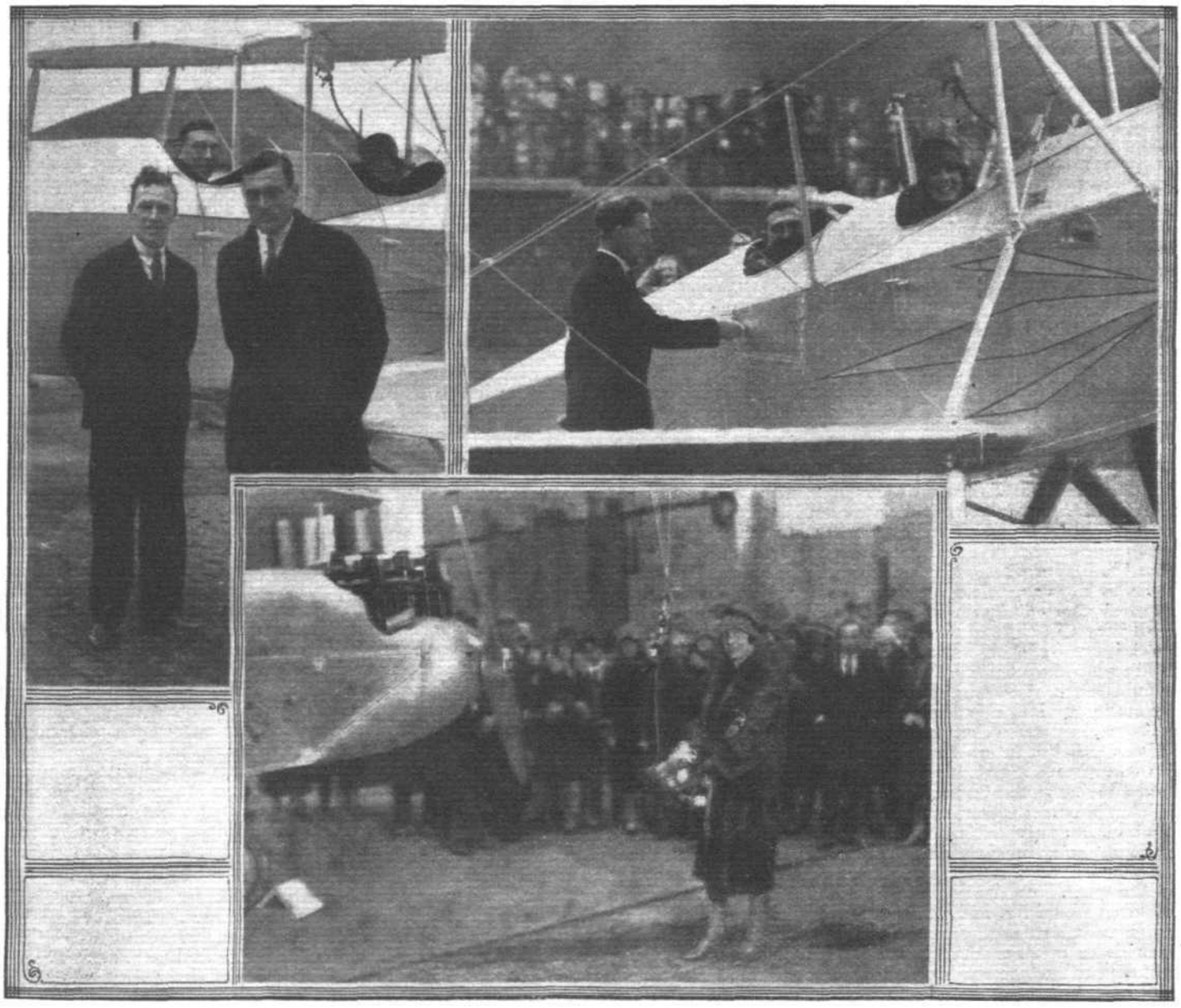
FLIGHT

DÉBUT OF SIMMONDS "SPARTAN" PRODUCTION TYPE

Interesting Ceremony at Southampton

THE youngest aircraft manufacturing company in this country, Simmonds' Aircraft, Ltd., Woolston, Southampton, celebrated the completion of their first production type of the Simmonds "Spartan" light aeroplane on December 31. It was christened by the Mayoress of Southampton (Mrs. M. H. Pugh) with pleasant ceremony at the Woolston works. Mr. O. E. Simmonds, M.A., chairman and chief designer of the company, and his co-director, Lieut.-Col. L. A. Strange, D.S.O., M.C., D.F.C., received the Mayor and Mayoress, and engage more men. Their workpeople and staff had made considerable sacrifice to get the first production machine ready for that day.

The Mayoress then christened the machine "Cirrus-Spartan." In a subsequent tour of inspection round the works, where 70 people are already engaged, apart from the staff, Mr. Simmonds explained briefly some of his methods of production. He believes that much money can be consumed in the erection process of aircraft, and he therefore



"FLIGHT" *Photographs*

CHRISTENING CEREMONY OF SIMMONDS "SPARTAN" PRODUCTION TYPE: In the picture on the left is Mr. O. E. Simmonds, Chairman (left), and his co-director, Lt.-Col. L. A. Strange, D.S.O., M.C., D.F.C. On the right, The Mayor and Mayoress of Southampton (Mr. and Mrs. Pugh) are trying the comfortable and spacious cockpits of the Simmonds "Spartan" (A.D.C. "Cirrus" Mk. III), Mr. Simmonds being alongside. Below is the Mayoress about to perform the christening ceremony in the usual way in the Company's Woolston works, on December 31, when a large number of guests were present.

in his preliminary remarks Mr. Simmonds observed that there were now in and around Southampton no less than four aircraft companies, which was as many as in the Metropolis itself.

He said that it was a pleasure that Simmonds Aircraft, Ltd., were able to ease local unemployment in a small way and that their present orders would necessitate taking further space in the Government Rolling Mills, when they hoped to reduces the work involved in erection to a minimum by having all sections of the machine completed as far as possible on the benches.

He has himself designed a very extensive system of jigs, and the first production machine is completely standardised. He has designed a jig for drilling the holes in the interchangeable fin and tail 'plane, for example. No steaming is done for bending. The longerons are curved to the sternpost

on the bench between jigs. The three-ply sides of the fuselage are in complete lengths and are slotted into position with the stiffeners already glued on. There are a dozen "Spartans" now in production, all of which are ordered, and they will be followed by another dozen immediately.

The first machine is going to the Scott Aeronautic Co. of Philadelphia, this week, and others to Australia and again, America. Two or three private owners want them in Australia, where, one believes, great expectations are anticipated by the Simmonds Aircraft, Ltd. It will be fairly well known to most of our readers now that the fundamental characteristic of Mr. Simmonds' machine is its comprehensive interchangeability, which means simplicity by the reduction of spares. Any of the main planes can be fitted into any wing joint, top or bottom, port or starboard. The rudder can be changed with either of the elevators, the fin with either outer section of the tail 'plane (which is designed in three sections), and finally, all the main bracing wires are of the same size and length. The main construction is of wood. The two cockpits are spacious and neatly upholstered, whilst the luggage compartment behind the rear cockpit seems particularly roomy. It has an extension beneath the fairing for lengthy objects like golf sticks. The neat, clean finish of the production machine with aluminium paint seems to have improved its lines. The A.D.C. "Cirrus" Mark III engine is very nicely cowled. A Fairey metal airscrew is fitted. The performance figures are not at the moment available, but the first "Spartan," which was demonstrated at Croydon on September 3, had a top speed of about 105 m.p.h. and a stalling speed of 37 m.p.h. The normal petrol capacity is 20 galls.

After the christening ceremony and works inspection last Monday, luncheon was given by the Simmonds Aircraft, Ltd., at the South-Western Hotel, Southampton, to the Mayor and Mayoress and many guests. Mr. O. E. Simmonds was in the chair and with him were the Mayor and Mayoress, Lieut.-Col. L. A. Strange, Col. M. O. Darby, of A.D.C. Aircraft, Ltd.; Mr. J. M. Savage, American Consul at Southampton, and Mrs. Savage.

Mr. O. E. Simmonds proposed the health of the King. Col. Strange, proposing the health of the Mayoress, said that they were very proud of the fact that she was the sponsor of the first Cirrus-Spartan and could assure her that in the future she also would be proud of being able to say when the machine was mentioned, "Yes, Sir, that's my baby." Her husband was the Mayor of the leading seaport in this country, and he, Col. Strange, earnestly hoped that Southampton in the near future would be the leading airport.

In the past our greatness was to some extent built up by our forefathers by their encouragement of the sea to protect trade and the country. He thought that this generation should see that it encouraged the spirit of the air. Only by encouraging the youth of this generation to fly, and to fly naturally, should we ensure the same great traditions in the future. In the future he believed that, just as in the past towns grew up round their market-squares, so the centres of great towns would be their airports.

The Mayor of Southampton then responded. He said that he honestly felt that in the years to come everybody present, and, in fact, the whole of Southampton, would look back upon that day as one of the landmarks in the history of the town. He did not think there was any doubt that his children would fly, and that every encouragement should be given to the younger people to acquire the art of flying. It was quite obvious that the future of the country would not depend exclusively on the navy as it had done in the past. The Air Force manœuvres of last year showed even the untrained mind that an attacking force could practically lay London in ruins in a few days. He agreed with Col. Strange that it was of paramount importance that every possible person should be able to fly if and when required, for the purposes of the defence of the country. Southampton, he continued, should be particularly grateful to Mr. Simmonds and Col. Strange for having come there to develop the extraordinary ingenuity of Mr. Simmonds as typified in the first "Cirrus-Spartan." He saw the time when the whole of the Rolling Mills would be a hive of industry turning out those wonderful machines to go all over the world.

And he hoped to be spared the day when Southampton in the flying world would be as big a name to conjure with as it was in the shipping world today. The town would not progress unless they could marry the air and sea services by providing quick transport by air to Southampton. He would do his best to see that the necessary space was made available for an airport as near the docks as it was possible to get it.

Mr. J. M. Savage then submitted the toast of "Simmonds Aircraft, Ltd." He mentioned that we lived in a wonderful age. We had lived to see the telephone, radio, motor and aeroplane, but the latter was still in its infancy. They of Southampton, he continued, speaking as one of them, were delighted that the Simmonds Company had established its works in that important port, and he was sure that the Mayor would do everything possible to make Southampton one of the principal airports in Great Britain. He wished the Company every prosperity and was glad that the first plane was going to his own country. He hoped that the orders the firm had already received from the United States would only be the forerunners of many in the future.

Mr. Simmonds then rose and made the concluding speech. He said that his Company was the first British firm to concentrate on the design and manufacture of civil aircraft, and he thought that if they gave themselves to the problem in the next ten years they would be able to do much towards putting Great Britain in the air.

Referring to Col. Strange, his co-director, he said that Col. Strange was one of the oldest airmen in this country and had been Commandant of the Central Flying School. Last August, when contemplating forming a light 'plane club in the West Country, Col. Strange became interested in the Simmonds "Spartan" and asked Mr. Simmonds for the loan of it for a month. At the end of that time he had reported on it enthusiastically as a very sound machine.

No other British aircraft, he continued, had ever, within the first six months of production of the experimental machine, been ordered in such large numbers abroad, and he was confident that by this time next year not only would there be Cirrus-Spartans all over the world, but they would be manufactured in two or three other countries. He thought that within five years the majority of aircraft, of biplane types in particular, would be designed on their principles.

They had been able to reduce ten main spares to four without loss of efficiency, but he did not think the industry had anything to fear from this system, for the simplicity gained would mean wider use of aircraft. He wished to say in particular what extraordinary assistance his company had been given by other aircraft companies, and in this connection he mentioned Messrs. A. V. Roe & Co. and the Fairey Aviation Co. It was a limited market for materials at present, but the established firms had been extremely generous towards them.

In conclusion, one recalls that the experimental Simmonds "Spartan" fitted with a "Cirrus" Mk. III engine and piloted by Mr. H. W. R. Banting, with Lt.-Col. L. A. Strange as passenger, flew non-stop from London to Berlin in 7 hrs. 10 mins. on October 24, which is claimed to be a record for the light 'plane class with a passenger on board. A return non-stop flight was made on October 27 by the same machine in a little under 6 hrs. About 56 lb. of luggage was carried. Nearly 50 gallons of petrol were taken, and the mean average consumption was 15 gallons. There was a contrary wind on the outward flight and visibility was at times very bad. The altitude maintained was never more than 200 ft. up to Hanover and in the circumstances the navigation of Mr. Banting was very good.

The range of the "Spartan" was considerably more than that covered. With its full load it took off, both at Croydon and Tempelhof, without the slightest difficulty and it reached 1,000 ft. at Tempelhof before leaving the aerodrome on the return journey.

The production type can be loaded up to 2,200 lbs. for very long range work.

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Noted Balloonist Dead

M. LOUIS CAPAZZA, a balloonist, who made the first balloon crossing from Marseilles to Corsica in 1886 and invented many aircraft devices, died in Paris recently at the age of 68 years.

Air Lines Change Hands

THE European and Polish air lines hitherto run by the Aerolot and Aero Companies, will be carried on in the future by the Lot Air Transport Co. Some of the new capital introduced will be contributed by the Polish Government.

Junior Institution of Engineers

A SPECIAL meeting of the Sheffield and District Local Section of the Institution will be held in the Cutlers' Hall, Sheffield, at 7.30 p.m., on January 16, when a lecture entitled "Early Aviation," will be delivered by Lieut.-Col. J. T. C. Moore-Brabazon, M.C., M.P., President of the Institution.

FLIGHT

THE POBJOY P.I. LIGHT 'PLANE ENGINE

AT the time of the 1926 Light 'Plane Competition at Lympne brief reference was made to the Pobjoy engine, which was designed by Capt. D. R. Pobjoy for the Cranwell C.L.A.4 light 'plane. Since that time considerable development work has been carried out with this engine, and just recently one has successfully passed the Air Ministry Type Test for Civil Engines.

This week we are able to give some brief particulars, together with illustrations of Pobjoy P.I., a 60-h.p. 7-cyl. air-cooled radial of robust construction, small size, and light weight. A high power is obtained by running the engine at 3,000 r.p.m. and driving the air screw through a simple reduction gear.

Its seven small pistons running at comparatively high revolutions permit the engine to operate with complete absence of vibration, and produce a very smooth reaction on the mounting. In spite of its speed of revolution, the engine shows a high degree of reliability and durability, as a result of careful attention to bearing and detail design.

The Type Test engine had previously done about 120 hours full speed running before being submitted for the type test; very little wear, however, has taken place. The official report on the strip inspection will be published in due course. New piston rings were fitted some time previous to commencing the Type Test. It appears that they were scarcely run in, as the final power curve shows that the engine developed 1½ h.p. more at the end of the tests, than at the commencement.

The oil consumption also steadily diminished and the average for the last 20 hours was 1½ pints per hour.

The exhaust valves, as viewed through the exhaust ports, remained black throughout the tests; their seats are in excellent condition.

Starting by hand from cold is easy, no priming being required; this is due to the design of induction system, the small bulk of the engine and to the fact that the magnetos run much quicker than the airscrew.

A hand starter to be operated from the aeroplane cockpit has been designed for the engine, but has not yet been fitted.

General Design and Construction

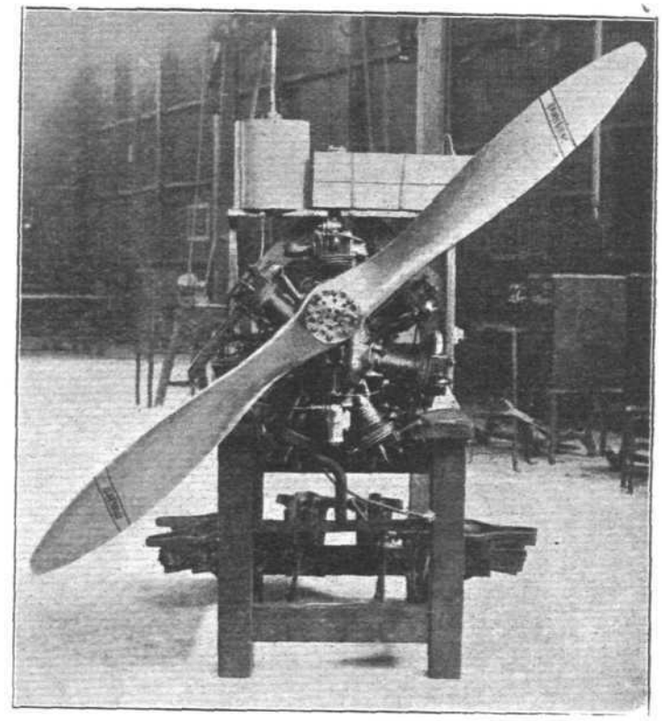
The aluminium crankcase is in four parts, as will be seen from the installation drawing. The two central portions carry the crankshaft on roller bearings. The front cover houses the reduction gear and the front plain bearing of the crankshaft. The rear cover carries the cam gear, the magnetos and the induction spider and carburettor.

The crankshaft is in two parts and the crankpin is case hardened. On the latter runs the big-end floating bush of plain bronze, which in turn runs in the hardened ring of the master-rod.

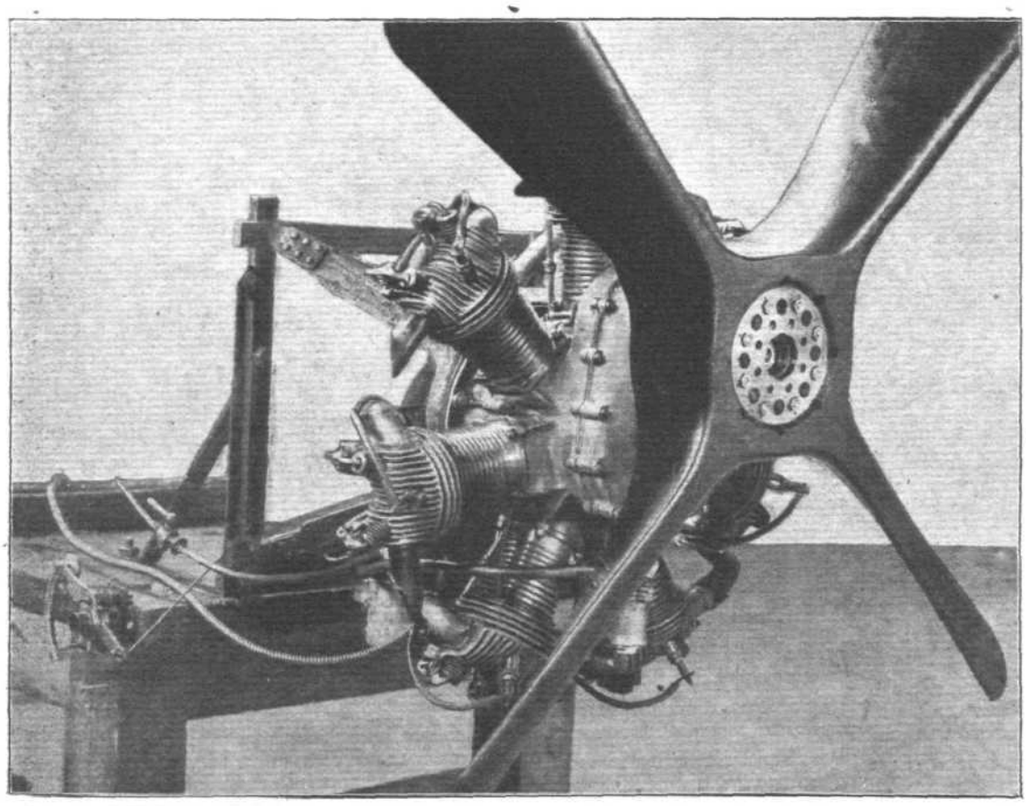
The six auxiliary connecting rods are linked to this ring by floating case-hardened wrist pins.

The aluminium pistons are of the slipper type and provided with two rings; the hardened gudgeon pin floats in its rod and its piston.

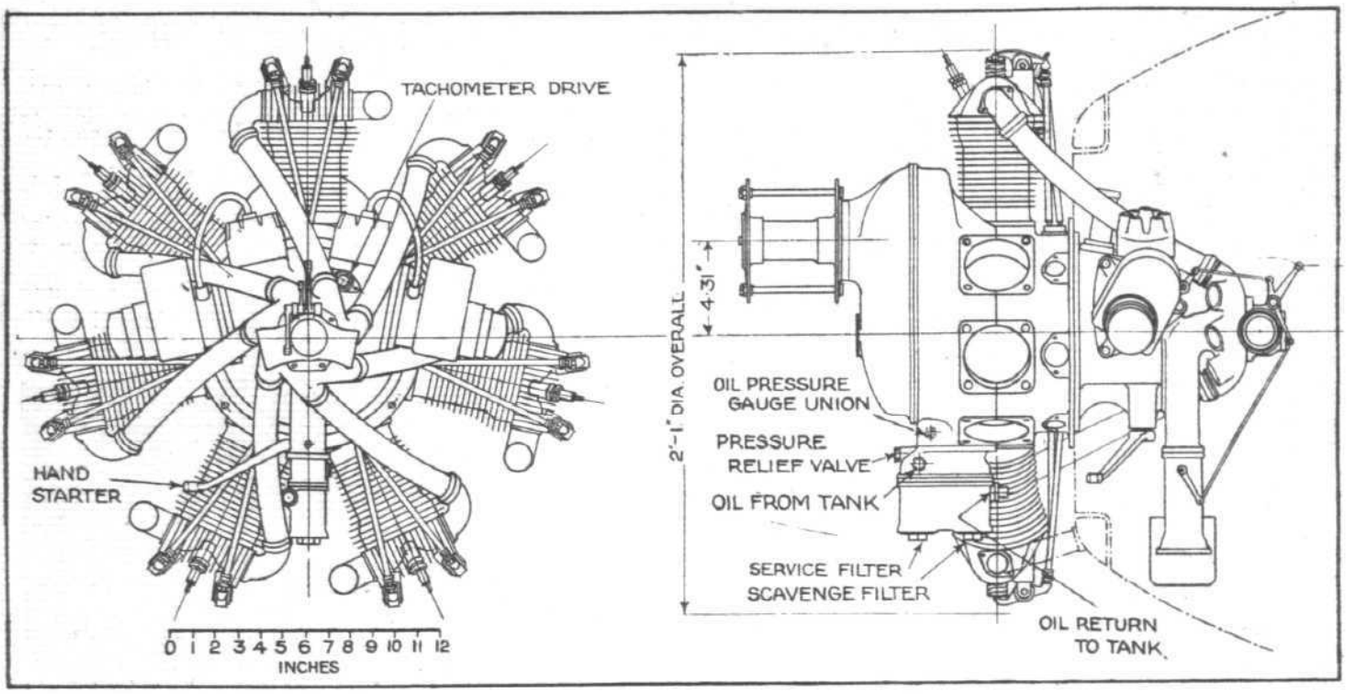
The cylinder barrels are of steel, and are screwed into the cast aluminium heads. There are two valves per cylinder,



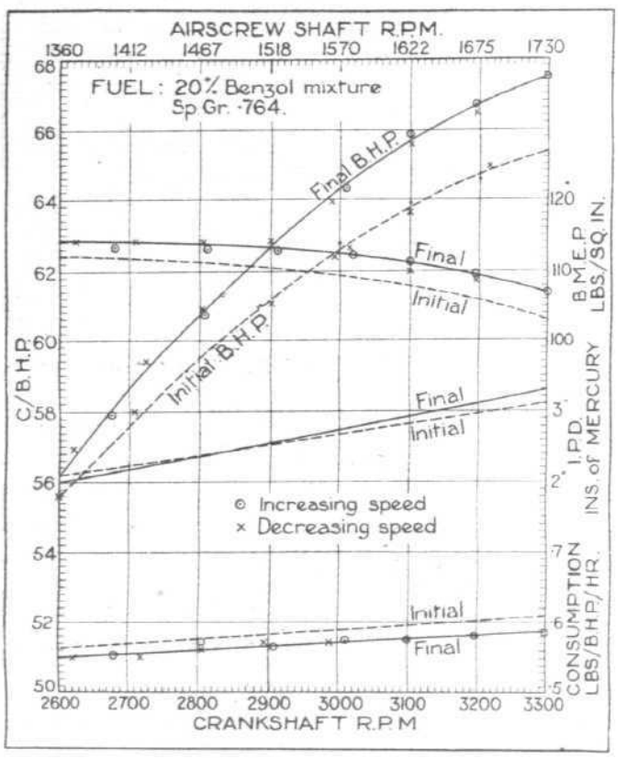
A front view of the Pobjoy P.I. light 'plane engine.



The Pobjoy P.I.: A 5-cyl. air-cooled radial engine of 60 h.p. for light 'planes, which recently passed its Air Ministry Type Test.



THE POBJOY P.I. : Rear and side elevations.



Power curves of the Pobjoy P.I. light 'plane engine.

operated by ball-bearing rockers and push-rods from a cam ring carried in the rear portion of the crankcase.

Full dual ignition is provided by two spark plugs per cylinder, fired by two single-cylinder B.T.H. magnetos through the medium of two special 7-point high tension distributors.

A unit comprising the oil sump, scavenger and supply filters, and the two oil pumps, is carried at the bottom of the front portion of the crankcase. These two filters can be cleaned without disturbing the oil pipes from the tank. There are no oil pipes in the engine. The scavenge pump draws the oil from the sump and returns it to the tank, whence it is drawn by the service pump and supplied via drilled passages in the front cover to the front plain bearing of the hollow crankshaft under a pressure of 45 lbs./sq. in.

The reduction gear consists of a simple pair of herring-bone toothed gears, and runs remarkably smoothly and quietly. It is impossible to tell by sound that the engine is geared. In order to assist in steadying the gear drive, a small fly-wheel, weighing about 3 lb., is secured to the crankshaft in front of the crankshaft gear wheel. This flywheel serves a double purpose ; it is hollow, and closed with a screwed cover easily accessible when the engine front cover is removed. Passages are so drilled in the crankshaft that the oil on its way to the big end must pass in and out of the flywheel.

Centrifugal force very effectively removes any foreign matter in the oil too fine to be stopped by the gauze filters in the sump. The capacity of this centrifugal separator is such that it does not require to be cleaned more frequently than every 100 hours.

The Zenith carburettor feeds the centre of a cast aluminium spider which distributes the mixture through the aluminium inlet pipes to the cylinders. These pipes are intended to pass through the engine mounting plate. A hot spot, heated by the exhaust from one cylinder carried in a shrouded pipe, is provided at the centre of the spider.

This system gives good slow running, together with instant acceleration.

	Main Data
Cylinder bore	72 mm.
Cylinder stroke	87 mm.
Rated power and speed ..	60 b.h.p. at 3,000 r.p.m. (1,570 airscrew).
Maximum power	67·5 b.h.p. at 3,300 r.p.m.
Fuel consumption (80/20)	0·57 lbs./b.h.p./hour.
Oil consumption	0·023 pint/b.h.p./hour.
Weight of engine complete with airscrew hub and short exhaust pipe ..	115 lbs.
Overall diameter	25 inches.

◈ ◈ ◈ ◈

Captain Sayers' New Post

CAPTAIN W. H. SAYERS, for a large number of years Technical Editor of *The Aeroplane*, has severed his connection with that journal and has joined Boulton & Paul, Ltd., as an Assistant Engineer under Mr. J. D. North. Captain Sayers was engaged on the actual construction of aircraft long before the war, and is thus by way of being one of our pioneers. His connection with our esteemed contemporary was interrupted during the war, when he was stationed at Isle of Grain, and was there largely responsible for the Grain "Kitten," a diminutive biplane with 40 h.p. A.B.C. engine. On leaving the service Capt. Sayers returned to technical journalism once more, and is now leaving this field of activity for actual aircraft engineering. We wish him every success.

IN WORLD WIDE USE

" . . . they are in use under conditions ranging from the Arctic winters of Northern Canada to the 6,000 ft. high aerodromes of Central Africa, and in all countries they are giving the utmost satisfaction."

On the World map shown below Moths are in everyday service in the countries indicated by black.

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Phone, London.
Telephone: Colindale
6160-6163.

The
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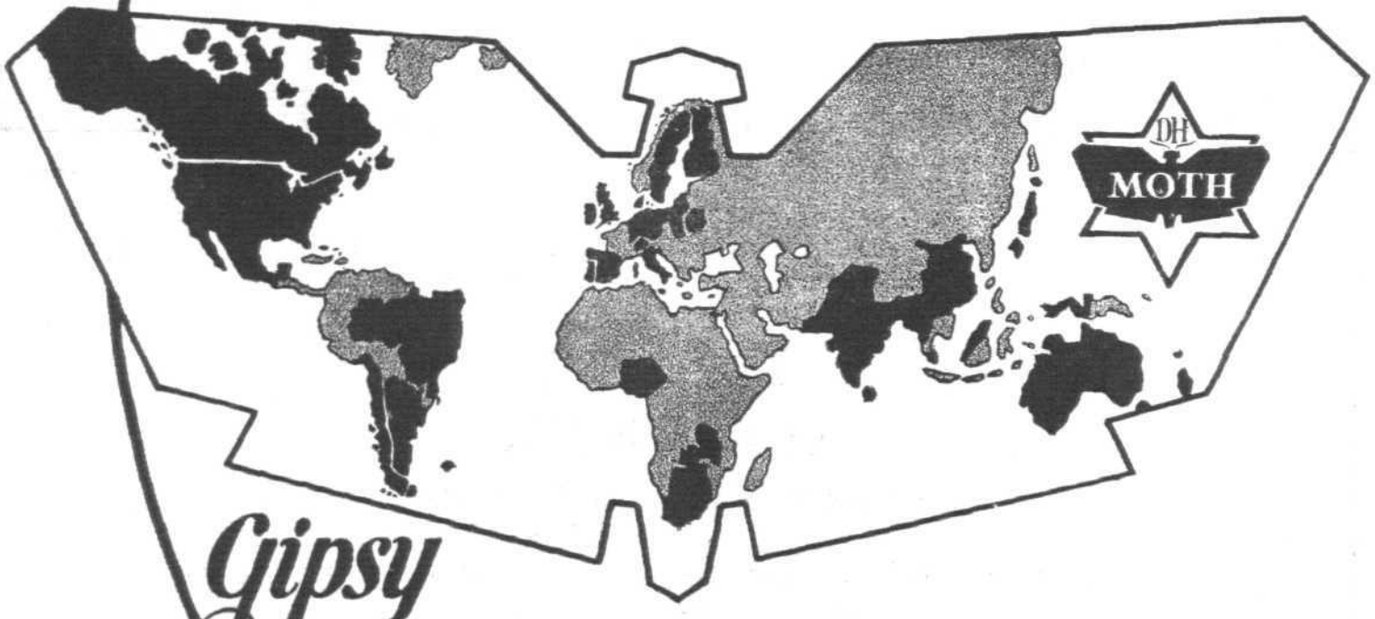
CANADA LTD.
Bay-Richmond
Building, 372 Bay
Street, Toronto 2,
Canada.
Telegrams: Moth,
Toronto.

The
DE HAVILLAND
AIRCRAFT PTY.
LTD.
Whiteman Street, South
Melbourne, Australia.
Telegrams: Moth,
Melbourne.



Gipsy

MOTH

PRICE £650

Streets

FLIGHT

AIRISMS FROM THE FOUR WINDS

Lady Bailey

IN her Cirrus-Moth Lady Bailey reached Mogador from Dakar on December 27. She was obliged to make a landing in the dangerous district of Rio del Oro, where the French air pilots, M. Reine and Serre, were kept prisoners for many months. Fortunately a Spanish outpost was near and Lady Bailey was safe. On December 28, Lady Bailey flew on to Casablanca, in Morocco, landing at 2.50 p.m. Starting for the next stage to Toulouse on December 30 she was obliged to return owing to bad weather, but set out again on January 1. Her flight started from Cape Town and her destination is London.

Airwoman's Endurance Record

AN American airwoman, Miss Viola Gentry, circled Roosevelt Field, New York, for 8 hrs. 12 mins., on December 21, 1928, which is mentioned in an American report as beating Lady Heath's record of 7 hrs. 31 mins.

Spanish Airwoman

SENORITA SORIANO, daughter of Gen. Soriano, is reported to be Spain's first woman air pilot.

Light 'Plane Towards India

M. PIERRE FISBACH, a French private pilot, left Orly Aerodrome near Paris on December 31, in an Albert light monoplane fitted with a 40-h.p. Salmson engine, for a long flight towards India. M. Fisbach was one of the competitors in the Light 'Plane Trials at Orly last September, with the same type of machine.

Air Transport for Gold Mining

GOLD ore was discovered at Favourable Lake, in Northern Ontario, Canada, about 290 miles from a railway station. The necessary machinery for drilling was conveyed by aircraft.

Graf Zeppelin's Record

THE German Air Council announces that the Fédération Aéronautique Internationale has recognised the return flight of the *Graf Zeppelin* between October 29 and November 1 from Lakehurst (N.J.) to Friedrichshafen, the distance covered being 3,967 miles, as a world's airship record.

Air Rescues in Kabul

A MESSAGE from India on December 30 stated that after heavy weather the R.A.F. machines were able to continue rescuing families from Kabul, Afghanistan. A Vickers "Victoria" troop carrier was again used. It had been flown over from Iraq, having flown the 1,000 miles from Bushire to Karachi in less than one day. The pilots reported 4 ins. of snow on the Kabul aerodrome, but as the ground underneath was firm, landing and taking-off were not difficult. An altitude of 8,000 ft. was chiefly maintained during the flights over snow-clad hills and in intensely cold weather. Three more troop-carriers have been flown from Iraq to Peshawar *via* Karachi.

Air Force Operations in Iraq

ROYAL Air Force machines bombed Wahabi raiders near the Nejd frontier, as reported in a Baghdad message on December 31. The machines located a party of 130 raiders mounted on camels, who opened fire on the machines without doing any damage. They decamped into the desert, where the pilots were forbidden to follow, otherwise heavier casualties among the raiders would have occurred. The war-like objective of the Wahabis was an encampment of Iraq shepherds, who, however, through a timely warning by a British officer, had removed during the night. These Wahabis are fanatical Puritans and opposed to all modern reforms in Islam. Their king is Ibn Saud, who received for a few years £60,000 per year from the British Government on condition that he did not interfere with the bordering countries of Hedjaz, Irak, and Transjordania. He proclaimed himself King of Hedjaz some time ago.

German Air Progress

A DIRECTOR of the Lufthansa, the great German commercial aviation organisation, writes the *Daily Telegraph*, January 2, states that the most gratifying feature of German aviation progress is the marked advance in the amount of freight conveyed. It advanced 62·5 per cent. in 1928 on the total for 1927. Germany's leading company carried 111,000 passengers, 800 tons of mail, and 480 tons of baggage over a total distance of more than 6,000,000 miles. These figures show substantial advances in all branches. Despite this progress, Lufthansa is still maintained to an extent of 75 per cent. by subsidies from the Reich, from various Federal States, and from cities, and it is estimated that with the most favourable rate of progress it will be ten or fifteen years before the main traffic lines can be self-supporting. The minor branch lines will likely continue indefinitely to depend on local subsidies for their existence. Lufthansa, with its allied foreign concerns, has now established regular connection with every part of Europe except Poland and the occupied Rhineland territory. Poland obstinately refuses to allow German planes to fly over her territory, and this formed one of the obstacles to the successful conclusion of the recent German-Polish Trade Pact negotiations, which were broken off. The Saar district was last year released for German flyers, and it is hoped that the Rhineland Second Zone will be set free in 1929, allowing the extension of the German air lines westward. But Lufthansa is not anxious to add to the number of existing lines. It prefers to increase the frequency of flights on the present lines. Excellent results have been achieved this year on the new "through lines" linking up Berlin with Paris, Frankfort, Vienna, and Zurich with non-stop flights. These lines are most popular with passengers.

——and Air Ambitions

THE Junkers Co. is perfecting preparations for its German-Russian-Siberian-Chinese line, states the *Daily Telegraph* for January 2, with minor lines switching off to Persia, Afghanistan and Asia Minor, from the main Russian junction points. Herr Karl Wigdor is agitating with the greatest energy for the development of German air lines to South America by aeroplane or airships, for, he asserts, "the great future line of traffic across the world will lead naturally through Buenos Aires, Rio de Janeiro, Las Palmas, in the Canary Islands off Africa, Travemuende, or other ports in Germany, Moscow, Peking, and Shanghai." "But," he adds, "it is up to Germany to hurry and establish herself in international air lines. She must beat competition in the Asiatic seas and in the South Atlantic. Whoever runs the first successful lines there will be the winner."

Schneider Trophy Competitors

THE United States have entered for the Schneider Trophy race, to be held at the Solent, next August or September. The teams entered now number four. They are England, France, Italy and America. France has entered four machines America only one, England will probably have three, while Italy will have four. The French machines will be two Nieuport and two Bernard seaplanes.

New Light 'Plane

COL. HENDERSON, of Brooklands, is constructing a new single-seater light aeroplane fitted with an A.B.C. "Scorpion" engine to sell at about £300. It will be a monoplane of 25-ft. span. The wing will be detachable for housing the machine. A new air taxi, also constructed by Col. Henderson, was tested by him recently.

Air Search for Fishermen

MILITARY aircraft carrying food and clothing have been used to locate 73 fishermen who were cast adrift on ice floes created by a storm on Lake Peipus, on the Russo-Esthonia border.

Capt. Malcolm Campbell's African Adventure

THE noted racing motorist, Capt. M. Campbell, gave wireless talks last week from the B.B.C. station in London on his recent flight to Africa in a "Gipsy-Moth" to survey the Sahara for a suitable motor-racing track. His pilot was Flight-Lieut. Don. They were forced to land on the coast of Riff country and spend a night with those dangerous people. They were clearly lucky to have escaped with their lives and to have salvaged the machine which, at first, had to be abandoned amongst the Riffs. The Spanish military in the zone extended them every hospitality and assistance. Thanks to the publicity given to the flight, Capt. Campbell has received particulars of a racing site in South Africa which he thinks will be favourable.

French Air Crash

A FRENCH commercial machine, flying on the Paris-Constantinople service, crashed in a fog and caught fire near Chalons-sur-Marne, on December 31. The pilot, M. Assolant, was only slightly injured. The machine carried no passengers. The freight was destroyed.

PRIVATE FLYING

A Section of FLIGHT in the Interests of the Private Owner, Owner-Pilot, and Club Member

FLYING IN SWEDEN

A Year's Good Work

A REPORT of last year's work of the Aero Materiel A/B., of Stockholm, with D.H. "Moth" light aeroplanes, is very interesting. This is a school of flying which opened on February 1 last year, and instruction was given in three terms. The first finished in May. Flying was carried out in three places—partly off the ice of Lilla Vartan, close to Stockholm aerodrome; then off the ice of Stora Vartan, in the vicinity of Djursholm; and, finally, during the Easter holidays, at Are in North Sweden.

Mr. A. Ahrenberg, a commercial and military pilot, was the chief instructor, and he was assisted by Mr. R. Holmén and Mr. K. B. Liljeberg, commercial pilots. Mr. A Falke, a ground engineer in the Swedish Royal Air Force, gave theoretical instruction, and so did Mr. H. Kjellson, a ground engineer at the Technical Department of the Royal Swedish Air Force Board.

One of the Aero Materiel A/B's school D.H. "Moth" (Cirrus) on skids, used during the past year for training flying club pupils in Sweden in various places.

Three of the Swedish instructors who trained pilots on D.H. "Moths" in Sweden during the last year. They are (left to right) Mr. A. Ahrenberg, Mr. R. Holmen and Mr. K. B. Liljeberg. The first-named was the Chief Instructor. All three are either military pilots or commercial pilots, or both.

AIRPORTS OF SWEDEN: No. 1 is the airport of Goteburg, No. 2 that of Malmo, and No. 3 Stockholm. In picture No. 4 is one of the flying club hangars with D.H. "Moth" (Cirrus) in the foreground used by the Aero Materiel A/B for training pupils.

AN IMPORTANT ANNOUNCEMENT

The Armstrong Siddeley Development Co., Ltd., through its allied organisations, Messrs. Armstrong Siddeley Motors Limited, Sir W. G. Armstrong Whitworth Aircraft Limited, and Messrs. A.V. Roe & Co., Ltd., is in an unrivalled position to supply Governments, Airline Operating Companies, Flying Schools and Clubs with a wide range of aircraft and engines. Enquiries are invited and prices can be quoted on application.

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The All-Steel A.W.A. 14 high performance Fighter fitted with an Armstrong Siddeley Jaguar engine.

Aircraft for Civil Purposes

The Armstrong Whitworth Argosy. A 20-seater Airliner fitted with three Armstrong Siddeley Jaguar engines.

The Avro Commercial Monoplane. A 4-5 seater or 8-10 seater fitted with three Armstrong Siddeley engines.

The Avro-Avian. A 2-3 seater light aeroplane fitted with Cirrus or Armstrong Siddeley Genet engine.

Aircraft for School and Club Purposes

The Avro Gosport, fitted with Armstrong Siddeley Mongoose engine and either wheels or floats.

The Avro 504.N. fitted with Armstrong Siddeley Lynx engine and either wheels or floats.

The Avro-Avian, fitted with Cirrus or Armstrong Siddeley Genet engine.

SIR W. G. ARMSTRONG WHITWORTH AIRCRAFT LTD. COVENTRY

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AN IMPORTANT ANNOUNCEMENT

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Aero Engines

THE FOLLOWING AIR COOLED ENGINES ARE AVAILABLE:—

The Leopard

The Armstrong Siddeley 700-750 *h.p.* 14-*cylinder Leopard* for carrying troops or torpedoes.

The Jaguar

The Armstrong Siddeley 450-500 *h.p.* 14-*cylinder Geared Jaguar* for Civil or Service requirements. Jaguar engines have been in service on the London Paris Airway for over three years.

The Super-charged 14-*cylinder Jaguar* is specially designed for maintaining power at high altitude.

Note.—The Armstrong Siddeley Geared Centrifugal Super-charger was the first device of its kind supplied to the Services and has now been in use for three years.

The Lynx

The Armstrong Siddeley 215-225 *h.p.* 7-*cylinder Lynx* as used on the Amsterdam-Batavia, Munich-Milan and other airways.

The Mongoose

The Armstrong Siddeley 130-140 *h.p.* 5-*cylinder Mongoose* engine for training work on land or sea.

The Genet

The Armstrong Siddeley 80-88 *h.p.* 5-*cylinder Genet*, an engine which is very much lighter than any engine in its class and is, therefore, particularly suitable for powering light aircraft.

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are specialists in the highest class of light engineering work. In a model factory employing over 4,000 workpeople, they produce annually many thousands of motor-cars, hundreds of air-cooled aero engines and much special apparatus for the Government. The quality, variety and quantity of work undertaken is a unique feature of this factory.

Sir W. G. Armstrong Whitworth Aircraft Ltd.

constructors and pioneers of all-steel aircraft, employ over 1,000 workpeople at Whitley, near Coventry. Here were designed and built the Imperial Airways' Argosies, the steel Siskins, Atlas and A.W.A. 14's for the Royal Air Force, and here, too, is a school for training pilots under the R.A.F. Reserve Scheme.

A. V. Roe & Co. Ltd.,

the largest, most successful and most experienced designers and manufacturers of training machines in the world. These machines are produced in a large factory, specially constructed for the manufacture of aircraft, at Newton Heath, Manchester. At their works and aerodrome at Hamble, near Southampton, important experimental work for the Government and other customers is undertaken.

A second term of instruction began in May at the Gothenburg Airport, but in July the school was transferred to the Malmo Airport until August. Mr. K. G. Lindner, military pilot and engineer, was then the instructor. The final term lasted from September to October, and was given at Stockholm Airport by Sergt. N. V. Nilsson, another commercial and military pilot. He was assisted by Mr. E. Roll and Mr. H. Nilsson, both commercial pilots.

During the three terms 33 pupils passed their examinations successfully and obtained private pilots' licences. Twenty-seven of them attended school after passing out for further training, or for the study of seaplane navigation. Thirteen other pupils were instructed, but for various reasons they did not attempt to qualify for their licences. For the year the total number of pupils was 46. The total school flying time for the four machines was 935 hrs. 17 mins.

Besides school work the machines, D.H. "Moths," did much photographic and propaganda work and communication flying for displays.

Long-distance flights totalled 257 hrs. 50 mins. Most of them were for the purpose of photographing objects situated between landing grounds and scattering propaganda leaflets on the way, which involved considerable deviations. Machines were always loaded to capacity. Pilot and passenger carried personal luggage to last for several weeks; cameras and 12 magazines and six-dozen plates, and seaplane equipment when seaplanes were used, such as an anchor, cable, mooring rope, and a draining pump for the floats, etc. Every flight was completed according to programme, although a mechanic was never carried, and the seaplanes had always to be moored in open water. Bad weather also prevailed during the summer.

Between January 26 and November 27 the four D.H. "Moths" made the following flying times:—

Flights.	S-AABM hr. min.	S-AABN hr. min.	S-AABO hr. min.	S-AABR hr. min.	Total hr.min.
Training.. ..	139 18	168 24	163 35	124 2	595 19
Passenger ..	16 54	15 55	25 27	26 0	84 16
Propaganda ..	7 32	60 13	11 35	31 0	110 20
Photographic..	2 42	2 15	80 19	11 10	96 26
Transfer.. ..	1 45	4 21	5 32	4 18	15 56
Tests	2 34	5 4	7 4	0 36	15 18
Displays.. ..	7 39	3 43	5 27	0 53	17 42
	178 24	259 55	298 59	197 59	935 17

A few of the stages on long-distance flights and the times taken are as follows:—Ornskoldsvik-Ostersund, 3 hrs. 15 mins., by D.H. "Moth" seaplane; Stockholm-Bollnas, 3 hrs. 15 mins., by seaplane; Malmslatt-Malmo, 3 hrs., by landplane; Malmo-Hamburg, 3 hrs., by landplane; Trondhjem-Oslo, 3 hrs. 45 mins., by landplane; and Karlshamn-Nykoping, 3 hrs. 20 mins., by landplane. Amongst the other numerous places visited were Tived, Uddevalla, Vanersborg, Karlstad, Oslo, Vaxjo, Varberg, Barkarby, Boras, Ahus, Pitea, Luea, Holmsund, Sundsvall, Soderhamn Ludvika and Filipstad.

LIGHT 'PLANE CLUBS

London Aeroplane Club, Stag Lane, Edgware. Sec., H. E. Perrin, 3, Clifford Street, London, W.1.

Bristol and Wessex Aeroplane Club, Filton, Gloucester. Secretary, Major G. S. Cooper, Filton Aerodrome, Patchway.

Cinque Ports Flying Club, Lympne, Hythe. Hon. Secretary, R. Dallas Brett, 114, High Street, Hythe, Kent.

Hampshire Aero Club, Hamble, Southampton. Secretary, H. J. Harrington, Hamble, Southampton.

Lancashire Aero Club, Woodford, Lancs. Secretary, F.W. Atherton, Woodford Aerodrome, Cheshire.

Liverpool and District Aero Club, Hooton, Cheshire. Hon. Secretary, Capt. Ellis, Hooton Aerodrome.

Midland Aero Club, Castle Bromwich, Birmingham. Secretary, Major Gilbert Dennison, 22, Villa Road, Handsworth, Birmingham.

Newcastle-on-Tyne Aero Club, Cramlington, Northumberland. Secretary, J. T. Dodds, Cramlington Aerodrome, Northumberland.

Norfolk and Norwich Aero Club, Mousehold, Norwich. Secretary, G. McEwen, The Aerodrome, Mousehold, Norwich.

Nottingham Aero Club, Hucknall, Nottingham. Hon. Secretary, Cecil R. Sands, A.C.A., Imperial Buildings, Victoria St., Nottingham.

The Scottish Flying Club, 101, St. Vincent Street, Glasgow. Secretary, Harry W. Smith.

Southern Aero Club, Shoreham, Sussex. Secretary, C. A. Boucher, Shoreham Aerodrome, Sussex.

Suffolk Aeroplane Club, Ipswich. Secretary, Maj. P. L. Holmes, The Aerodrome, Hadleigh, Suffolk.

Yorkshire Aeroplane Club, Sherburn-in-Elmet, Yorks. Secretary, Lieut.-Col. Walker, The Aerodrome, Sherburn-in-Elmet.

HAMPSHIRE AEROPLANE CLUB

REPORT for week ending December 22, 1928.—Pilot instructors: Flight-Lieut. F. A. Swoffer, M.B.E., and Mr. W. H. Dudley. Ground engineers: Mr. E. Lenny and Mr. J. Elliott. Aircraft: D.H. 60 Moths G-EBOI and G-EBOH, and Avro Avian G-EBVI. Flying time for the week, 7 hrs. 45 mins. Pupils under instruction (4), 3 hrs. 20 mins.; soloists (1), 50 mins.; "A" pilots (4), 2 hrs. 40 mins.; tests (7), 55 mins.

We have been able to do very little flying this week owing to fog and general bad weather. However, Mr. Harrison has managed to put in a successful first solo.

LANCASHIRE AERO CLUB

REPORT for week ending December 22, 1928.—Flying time, 7 hrs. 20 mins. Machines in commission: PH, XD, MQ, QL. Instruction (2), 1 hr.; solo flights (7), 3 hrs. 5 mins.; passenger flights (3), 1 hr. 45 mins.; tests (9), 1 hr. 30 mins.

Instruction (with Mr. Hall): Messrs. Whitehouse, Foote.

Soloists (under instruction): Mr. Eckersley. Pilots: Messrs. Lacayo, Mills, Gort, Meads, D. Nelson, R. F. Hall. Passengers (with Mr. Chapman): Mr. Bartram; (with Mr. Lacayo) Mr. Whitehouse; (with Mr. R. F. Hall) Miss Hartley.

LIVERPOOL & DISTRICT AERO CLUB

FLYING report for week ending December 22, 1928.—Machines in commission: Avro Avians GEB-WK and XX. Instructor: Flight-Lieut. Sullock (honorary). Ground engineer: Mr. Nutter. Total flying time, 1 hr. 50 mins. Four pupils flew a total of 1 hr.; three "A" pilots totalled 30 mins.; one passenger flight, 10 mins.; two test flights totalled 10 mins.

Flight-Lieut. Sullock's kindness in carrying on has been all but cancelled by continued bad weather. The Lancashire Club lent us their ground engineer on Saturday as Mr. Nutter could not get over. One can't help but like those Manchester men.

Report for week ending December 29, 1928.—Machines in commission: Avro Avian, XK, XX, XY. Instructor: Flight-Lieut. J. B. Allan. Ground engineer: Mr. H. Pixton. Total flying time, 10 hrs. 20 mins.

Eight pupils totalled 4 hrs. 40 mins., dual; five soloists totalled 1 hr. 30 mins.; five "A" pilots totalled 3 hrs. 10 mins.; four passenger flights totalled 50 mins.; test flights, 10 mins.

We are glad to report that both Flight-Lieut. Allan and Mr. Pixton have recovered from their recent indisposition, and returned to duty on Thursday last. Flying hours are now as usual, *i.e.*, 11 a.m. to sunset, Mondays excepted.

Both the members who turned up to our punch party on Thursday enjoyed themselves.

MIDLAND AERO CLUB

REPORT for two weeks ending December 29, 1928.—The total flying time was 12 hrs. 56 mins. Dual, 3 hrs. 5 mins.; solo, 6 hrs. 55 mins.; passenger, 1 hr. 10 mins.; test, 1 hr. 46 mins.

The following members were given dual instruction by Flight-Lieut. T. Rose, D.F.C., and Mr. H. W. Sutcliffe:—R. G. Welch, F. D. Scott, C. T. Davis, M. Turner, T. W. Wild, G. C. Jones.

"A" Pilots.—E. P. Lane, N. J. Nock, G. Robson, E. D. Wynn, C. W. Fellowes, J. Cobb, W. M. Morris, R. L. Jackson, H. J. Willis, R. D. Bednell, G. C. Jones, S. H. Smith, W. Swann, R. C. Baxter.

Soloists.—F. D. Scott, J. B. Briggs, W. L. Handley, J. K. Morton.

Mr. Handley has joined the ranks of private owners. He has bought an SE 5A (G-EBTO), formerly owned by Mr. Will Hay. This machine is housed in the club hangar.

NEWCASTLE-UPON-TYNE AERO CLUB

REPORT for week ending December 30, 1928.—Pilot Instructor: G. M. S. Kemp. Ground Engineer: K. C. Brown; assistant, J. Tait. Machines (2): LX and PT. Flying time, 14 hrs. Instruction, 4 hrs. 55 mins.; "A" Pilots, 4 hrs. 35 mins.; solo training, 2 hrs. 55 mins.; passenger, 55 mins.; tests, 40 mins.

Mr. Irving and Mr. Thompson arrived with their Gipsy "Moths" on the 24th inst., after a particularly trying journey in bad weather.

Mr. H. H. Leech also arrived on the same day with his "Baby Avro."

Mr. Stainthorpe successfully completed his tests for his "A" licence.

NOTTINGHAM AERO CLUB

REPORT for week ending December 14:—Pilot Instructor: Mr. Bernard Martin. Ground Engineer: Mr. F. H. Harley. Machine: G-AABA. Flying time for week: 8 hrs. 55 mins.

Pupils under instruction: 4 hrs. 30 mins. Dr. Tresidder and Messrs. Cudlip, Granger, W., and Kay.

"A" pilots: 3 hrs. 35 mins. Messrs. Ball, Taylor, Shipside, Winn and Bradley.

Test flights: 50 mins.

The fact that we still have "QW" out of commission and the foggy weather we had during the week-end has accounted for the "wee small hours" attained. Weather permitting, flying will take place throughout Xmas, when we hope to see four members do their first solos.

SCOTTISH FLYING CLUB, LTD.

REPORT for week ending December 15.—Pilot Instructor: Mr. R. M. Stirling. Ground Engineer: Mr. W. Calder. Machines in commission during week: X "Moth," G-EBYG; Avro "Avian," G-EBTY. Dual instruction: 3 hrs. 40 mins. Solo flying: 5 hrs. 30 mins. Joyrides and tests: 3 hrs. 25 mins. Total: 12 hrs. 35 mins.

Instruction (with Mr. Stirling): Messrs. D. K. Fairweather, A. B. Walter, J. C. McDougall, J. E. R. Young and Lord Douglas Hamilton.

Our reduced flying time this week is entirely due to adverse weather conditions in which the smoke of Glasgow, aided and abetted by an east wind, has been the chief offender. Apart from a successful cross-country flight to Fife, carried out by Mr. L. C. Davey in G-EBTY, on Friday, the little flying there has been has been quite uneventful.

REPORT for week ending December 22, 1928.—Pilot instructor: Mr. R. M. Stirling. Ground engineer: Mr. W. Calder. Machines in commission during week: X Moth G-EBYG, an Avro Avian, G-EBTY. Dual instruction, 2 hrs. 25 mins.; solo flying, 12 hrs. 30 mins.; joy-rides and tests, 1 hr. 30 mins.; total, 16 hrs. 25 mins.

Instruction: (with Mr. Stirling) Messrs. D. K. Fairweather, F. W. Murray, and D. Ferguson; (with Mr. Houston) Mr. D. K. Fairweather.

Another week of broken weather has somewhat reduced our total flying time. It is gratifying to note, however, that the deplorable weather conditions of late have not greatly affected the general enthusiasm, as evidenced by the fact that the machines are almost fully booked from day to day. Nothing of very great interest, from a flying point of view, may be recorded this week, a cross-country flight to Edinburgh by Lord Douglas Hamilton in G-EBTY on Thursday being the only departure from a normal routine.

SOUTHERN AERO CLUB

REPORT for week ending December 30, 1928.—Although we remained open during the Christmas holiday, the weather permitting us to carry out flying operations every day except on Boxing Day, there is little else of interest to report. The following flew during the week: Messrs. Sale, Barnet, Alexander, Thynne, Rogers, Miles, Bellairs, Brown, and Esler.

FROM THE FLYING SCHOOLS

Brooklands School of Flying, Brooklands Aerodrome

REPORT for week ending December 30, 1928.—Instructor: Capt. A. E. Jones. Ground engineers: W. A. Watts, W. H. Hellon. Machines in commission: G-EBVE and G-EBWJ. Flying time, 3 hrs. 55 mins. Pupils under instruction, 6 hrs. New pupil, Mr. W. H. Whetton.

The school was closed down from Saturday, December 22, to Friday, December 28, and those who had recovered from the Christmas festivities by the week-end came and did some aviation.

The De Havilland Flying School, Stag Lane Aerodrome

REPORT for week ending December 16:—Total flying time: 40 hrs. 15 mins. Instruction: dual, 23 hrs. 25 mins.; solo, 5 hrs. 35 mins. Other flying: 11 hrs. 15 mins.

Flying at Stag Lane has been greatly curtailed this week owing to the extremely bad weather conditions which have prevailed.

The de Havilland School of Flying wish all other schools a Happy Christmas and a Prosperous New Year.

OVERSEAS CLUBS

SINGAPORE FLYING CLUB

REPORT for week ending November 17, 1928.—Total flying time, 15 hrs. 10 mins. Solo, 1 hr. 5 mins.; dual instruction, 7 hrs. 15 mins.; air experience, 6 hrs. 5 mins.; joy-rides, 45 mins.

A cable was received during the week from Sir Charles Wakefield offering to present the club with a "Moth" seaplane. This generous offer was immediately accepted, and as the club is purchasing another "Moth," we anticipate having four machines in action in the near future.

Flying time this week is below average, as only one machine has been available and the weather has not been altogether favourable. G-EBUK is having a much needed thorough overhaul.

On November 12 R. Johnstone passed his "figure of eight" test, and on the 15th inst. H. S. Chapman made a successful first solo flight, bringing the number of members in the "pilot" class up to seven.

The following are at present on the roll of pilot members: W. M. Blagden, H. S. Chapman, P. T. Hutchings, R. Johnstone, L. W. Learmount, W. I. L. Legg, P. W. F. Mills.

The following members form the instruction flight: J. E. S. Alexander, E. A. Barbour, J. Greig, E. G. Holiday, C. Jackson, E. Lubbock, E. C. Martin, W. L. Morgan, S. Moss, J. Parkinson, J. Pestell, H. W. Shook, C. Stanley, S. G. Vickers.

REPORT for week ending November 24, 1928.—Total flying time, 12 hrs. Solo, 1 hr. 30 mins.; dual, 7 hrs. 20 mins.; air experience, 2 hrs. 15 mins.; joy-rides, 35 mins.

The weather has been very much against us this week, very little flying being possible in the evenings. On the 21st inst. R. Johnstone passed his altitude test for "A" licence. C. Jackson has been added to the list of pilot members, and G. Allen and N. Jarman have been promoted to the instruction flight.

◈ ◈

New Educational Adviser

THE Secretary of State for Air has appointed Mr. W. M. Page, C.B.E., M.A., one of H.M. Inspectors of Schools and formerly Fellow of King's College, Cambridge, to be Educational Adviser at the Air Ministry as from January 1 in succession to the late Colonel Ivor Curtis, C.B.E., M.A., A.M.I.M.E.

Irish Sea Air Route Instructions

AN Air Ministry notice states that pilots crossing the Irish Sea between Holyhead and Baldonnel Aerodrome must notify the Holyhead Meteorological Station in advance and then circle the station before flying out to sea. In the event of non-arrival, Seaforth wireless station will be informed and will transmit a message to all shipping. Pilots are also asked to send word of safe arrival to Holyhead or Baldonnel.

Reading Boys' Enthusiasm For Models

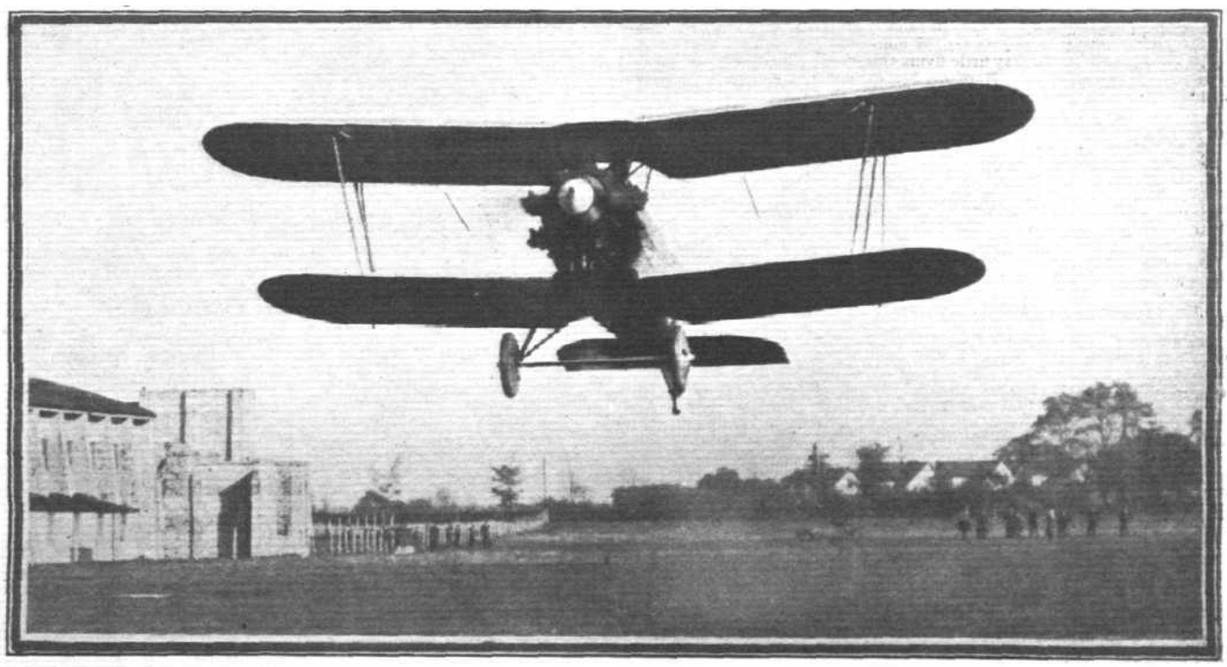
THE construction and flying of model aeroplanes is a popular hobby with Reading boys. Recently they held a flying meeting on the Sol. Joel Playing Field and twenty attended. Many successful flights were made. The movement has grown under the influence of Mr. W. A. Smallcombe, Curator of Reading Museum and Art Gallery, who has won international honours with his own models. The boys have built machines from the plans drawn by Mr. Smallcombe.

Croydon Expands

FROM January 1 the hangar accommodation at Croydon aerodrome has been nearly doubled, for the Air Ministry has taken over the entire aerodrome frontage of the old National Aircraft Factory, Waddon. This means the acquisition of a hangar thought to be the largest in the world. It will hold 50 air liners. Last summer 113 British aircraft and 132 foreign aircraft arrived or departed in a week. In December there were 31 flights in British machines and 39 in foreign machines in a week.

New Postal Service

THE new Latécoere postal service by air between Paraguay, Argentina and Europe, was officially inaugurated on December 1.



["FLIGHT" *Photograph*

MORE BRITISH AIRCRAFT FOR FINLAND: A Gloster "Gamecock" with "Jupiter" engine, one of a batch being built for the Finnish Air Force, being tested by Mr. Saint at the Gloster aerodrome at Brockworth.

FLIGHT
THE AIRCRAFT ENGINEER AIRSHIP

EDDIES.

By AEOLUS

A HAPPY and Prosperous New Year to one and all from the staff of FLIGHT, Editorial and Administrative.

THE above by way of reciprocation and appreciation of the pile of Season's Greetings to FLIGHT, to hand from practically every corner of this little globe of ours.

ONE little greeting from a member of 31 (A.C.) Squadron, R.A.F., was particularly interesting (from the personal point of view), as may be judged by the accompanying photograph. Stationed at Quetta, in N.W. India, our reader writes that : " Whilst on operations in Iraq I had occasion to pass through

In the Bazaar at Zubair : An interested Eastern reader of " Flight."

the town of Zubair on the way to Shiabah. In the bazaar I came across an Arab, sitting peacefully in his shop, perusing a copy of FLIGHT. In the accompanying photograph he is smiling, probably thinking after all that it is much better to be a shopkeeper than an Ahkwan and being bombed by the R.A.F."

AIR-MAIL users may take heart at last that before the end of the century is reached the Post Office may begin to consider the issue of an air-mail stamp—or perhaps even a series of values. At least they have taken their courage in both hands and are about to venture upon a special stamp in connection with the Postal Union Convention which, in 1929, takes place in London. The only other instance of this daring departure is the Commemorative stamps of 1*d.* and 1½*d.* values issued for the Wembley Exhibition.

IT is to be hoped that the reported finding of a bottle message purporting to be signed by Amundsen, giving a description of the tragedy of the Latham seaplane which set out to help the crew of the *Italia*, is not another fatuous practical joke. It is difficult to understand the psychology of this type of imbecile who can think it humorous thus to harrow the feelings of those to whom such " jokes " are devastating.

A GOOD example of modern methods of educating the youth of today is forthcoming in the Schoolboys' Own Exhibition being held at the New Horticultural Hall, Westminster. There, amongst a mass of instructive " exhibits," is one of the control car of R.33 and a " Jupiter" engine. The practical interest which this has created amongst the boy visitors who " want to know " must well repay the originator of the idea of placing these on view.

MR. HARRY PRESTON, of Brighton—*the* Harry Preston—writing to the *Sunday Dispatch* last Sunday upon the " Greatest Moment in my Life "—I wonder ! —says :—

" In the days of the flying pioneers Grahame-White was in Brighton. I had just acquired the Royal Albion Hotel, and he offered an aerial view of it. I accepted.

Up we went. The engine roared and rattled. The gimcrack machine swayed and shook as though it would fall to pieces any moment, circling the pier and swooping so low over the hotel we nearly hit the chimney pots.

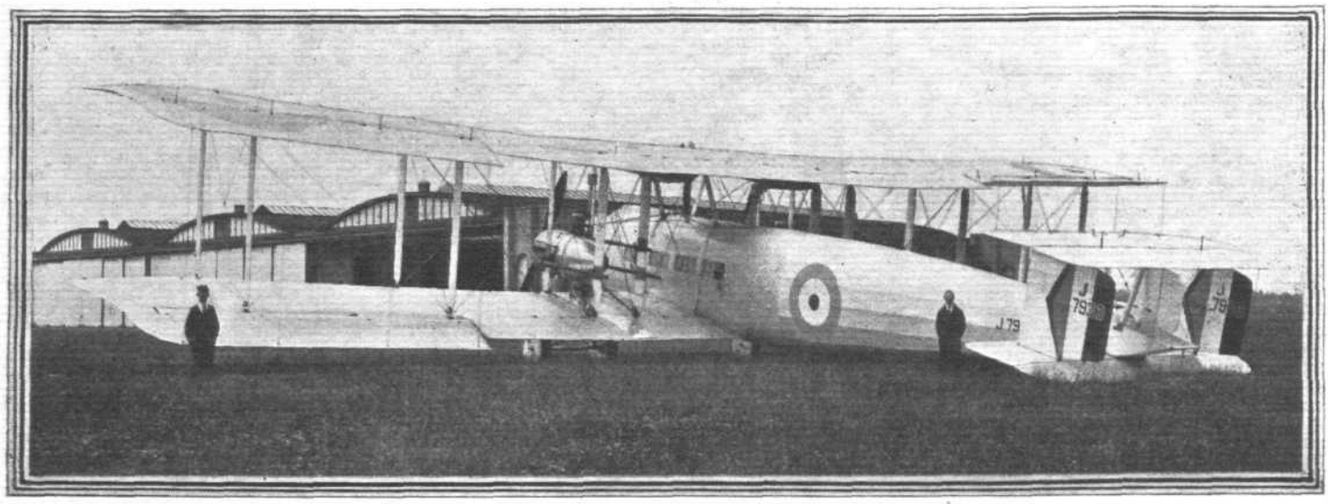
Just as we roared clear George Graves looked out of a top-floor window and waved a cloth he had snatched off a table. Grahame-White saw him and playfully banked and swooped back. And then I yelled and grabbed the pilot's shoulder. He pulled her nose up just in time.

There were some telegraph wires stretched across the roof which he hadn't noticed. We missed them by a few inches only."

" THE Higher the Fewer." In the early days of FLIGHT a paragraph appeared pointing out that at long last this " legend " had been justified by the conquest of the air. Now it seems it may once more revert to its back legendary place as, if theorists and optimistic forecasters are to be relied upon, in the years to come it is the upper atmosphere which will be crowded by high-speed aeroplanes travelling at anything up to 500 or 600 m.p.h. (perhaps) and the lower strata will be for the slow coaches only. You never know.

Mrs. B. Simonius, who recently took her pilot's certificate at the Basel aerodrome.

MRS. B. SIMONIUS—whose portrait appears on this page—is the first " Swiss Miss " to learn to fly ; she recently obtained her aviator's certificate at the Basel aerodrome on an Avro " Avian " (" Cirrus ") belonging to her husband, who is



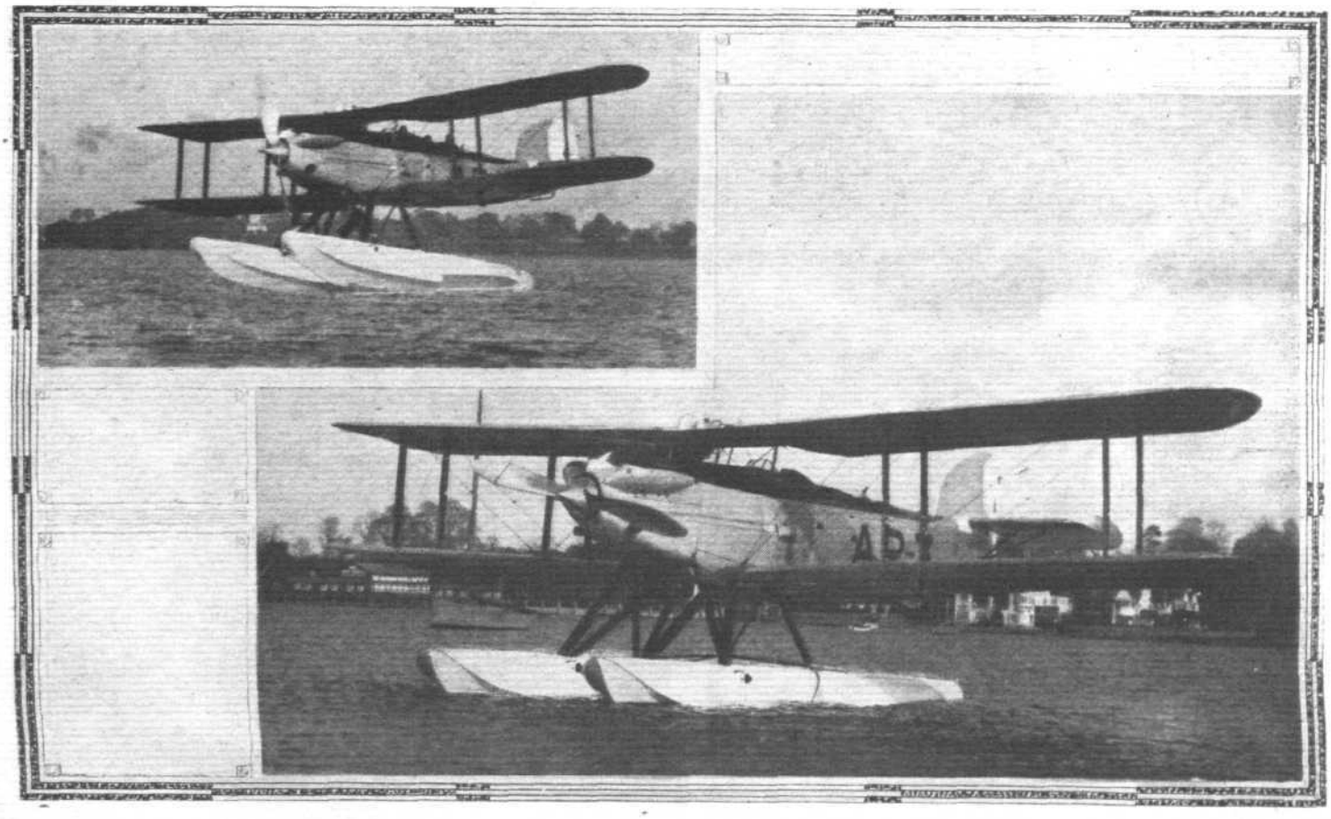
AIR RESCUES IN AFGHANISTAN : The Vickers-Napier " Victoria " troop carrier, which has been instrumental in transferring the British and other European women and children from the danger zone of Kabul (Afghanistan) to Peshawar, India.

himself a well-known pilot. In spite of foggy weather Mrs. Simonius passed her altitude and stunt flight tests in excellent style; her instructor was Herr Zimmermann, a director of the Balair Company.

ONCE again has the R.A.F. made history by the evacuation of those in possible peril in Kabul. It is the more conspicuous by reason of no distinction as to nationality being shown in the rescues, whether they were German, French or British. The world's admiration has been handed out generously at the work done under the trying conditions.

IN this connection *The Times* Calcutta correspondent wrote the other day : " The spectacular evacuation of all the women and children of the whole international Corps Diplomatique, except the Russians (who presumably will evacuate themselves northward), has left old-time soldiers, who still regard Kabul as a place which can only be reached after mobilising the whole of the army in India, gaping, and will hasten the day when the Air arm takes its proper position, still withheld from it."

APROPOS of the trouble at Kabul, poor Webster will soon have to be scrapped if the announcers of the B.B.C. are allowed to have their own way much further without protest. Just try on your friends the question—" Can you tell me where Corbell is ? " and, provided they have not been bitten by the B.B.C. pronunciation microbe, the most likely answer will be " a lemon."



Photos : Beken & Son, Cowes

A FAIREY SEAPLANE : Two views of the Fairey III F (Lorraine engine) fitted with float undercarriage, carrying out tests at Hamble.

THE WAR IN THE AIR*

WHILE it was undoubtedly a great misfortune, as well as a tragedy, that Sir Walter Raleigh should have died after producing the first volume of "The War in the Air," so breaking the continuity of the work, the student of history may congratulate himself that so good a successor as Mr. Jones should have been found. His task must have been difficult, not only because he had to succeed one who had made an excellent start, but also because in many ways it must be harder to describe actual operations than to write an introductory volume. His publication had to be, not a history of the war, but one of a certain arm which took part in that war. The author had to steer a path between giving so little of the general operations that the doings of the air services would be unintelligible to anyone who had not taken part in them, and giving so much of the general history that the book would cease to be a specialist work. Mr. Jones has steered that course with excellent judgment, and has given neither too much nor too little of the general fighting.

Again, the history of the war in the air is largely a record of technical development, but obviously the work would have had but a limited value if its scope had been confined too much to the design rooms at Kingston, Filton and elsewhere. Again, Mr. Jones is very judicious. He explains, quite plainly enough for the general reader, yet not in such elementary style as to irritate flying men, why it was that the Fokker at one time achieved a mastery in the air, and how it was that the F.E. (which he wrongly explains as meaning "Farman Experimental" instead of "Fighting Experimental") 2b and the D.H.2 ultimately mastered it. The public at the time knew but little of these technicalities and of the war between the brains of designers. To the public an aeroplane was just as aeroplane. Mr. Jones has explained that there was a good deal more in it than that.

The development of tactics and strategy in the use of aircraft is also traced with just the right amount of emphasis. Tactics in the air date from a Flying Corps order of January 14, 1916, which enjoined formation flying. Its success was immediate, and on February 7 of that year one of our reconnaissance machines escorted by three B.E.2c's flew for 53 mins. over the lines, and returned, still in formation, with 14 enemy machines hanging round the flanks and rear. Still, one rather wonders why the Germans did not show more enterprise.

It is interesting to note that formation flying was originally ordered as an expedient "Until the Royal Flying Corps are in possession of a machine as good as or better than the German Fokker."

Air strategy dates from about the same time, and meant the practical application of the principle that attack is the best defence. It sounds simple, but the Air Staff does not yet dare to carry this principle to its logical conclusion and dispense with squadrons of fighters from the Air Defences of Great Britain. Presumably, army reconnaissance aeroplanes will always need a certain amount of protection, but in other respects the principle means that all air energies must be concentrated on damaging the enemy's aerodromes, forces, and lines of communication. For a long time the Germans adopted the defensive principle, and used their aircraft to try to defend points behind their own lines, with results disastrous to themselves. It was Boelcke who changed that, and von Richthofen carried on his work.

This volume does not deal only with the Royal Flying Corps. It gives equal attention to the Royal Naval Air Service, and recounts much work by that body which is not generally known. Seaplanes, airships, and kite balloon receive their due share of attention, as well as land-planes The volume covers the years 1915 and 1916, and deals with the air work at Gallipoli, the fighting in Flanders from Neuve Chapelle to the end of the Somme battles, and then the work over the North Sea including the famous battle of Jutland.

The account of Jutland is particularly interesting, though one rather marvels at the restraint with which the neglect of aircraft by the navy is recorded. The aircraft carrier *Campania* did not accompany the Grand Fleet from Scapa Flow because, for some extraordinary reason, she did not receive her orders to sail and did not realise until two and a half hours afterwards that the Grand Fleet had sailed. She tried to catch up, but was so far behind that Jellicoe ordered her to return to Scapa. It is a curious story. But still more inexplicable is the well-known fact that, though the carrier *Engadine* was with the battle cruisers under Beatty, she was only ordered to send up one seaplane (a Short piloted by Flight-Lieut. F. J. Rutland) during the battle. Mr. Jones remarks that the battle's "interest to the student of air power lies, not in what aircraft did, but in what opportunities of perhaps vital importance were open for their use." It is certainly maddening to read of our admirals groping blindly for the Germans and not using the eyes which were available for them; while on the morning of June 1, the Zeppelins were able to keep von Scheer informed of where the British were. Consequently the High Seas Fleet was sunk off Scapa Flow instead of off Jutland.

F. A. DE V. R.

* *The War in the Air*. Vol. 2. By H. A. Jones. (The Clarendon Press. 17s. 6d.)

A Russian "Pusher": This motor sledge, with driver's seat forward and an enclosed cabin for the passengers, is fitted with a Bristol "Lucifer" engine.

THE ROYAL AIR FORCE

NEW YEAR APPOINTMENTS

APPOINTMENTS TO HIGHER COMMANDS

THE Air Ministry announces that the following appointments took effect from today, January 1, 1929 :—

Air Chief Marshal Sir John Maitland Salmond, K.C.B., C.M.G., C.V.O., D.S.O., Principal Air Aide-de-Camp to the King, as a member of the Air Council (Air Member for Personnel), vice Air Vice-Marshal Sir Philip Woolcott Game, K.C.B., D.S.O., placed on the retired list at his own request.

Air Vice-Marshal Sir Edward Leonard Ellington, K.C.B., C.M.G., C.B.E., to command the Air Defence of Great Britain Command.

Air Vice-Marshal Francis Rowland Scarlett, C.B., D.S.O. (temporarily in command of the Air Defence of Great Britain Command in the absence of Sir John Salmond), to command the Fighting Area, Air Defence of Great Britain.

HALF-YEARLY PROMOTION LIST

THE undermentioned are promoted with effect from January 1, 1929 :—

General Duties Branch

Air Marshal to Air Chief Marshal.—Sir John Maitland Salmond, K.C.B., C.M.G., C.V.O., D.S.O., Principal Air Aide-de-Camp to the King.

Air Vice-Marshal to Air Marshal.—Sir John Frederick Andrews Higgins, K.C.B., K.B.E., D.S.O., A.F.C.

Air Commodore to Air Vice-Marshal.—Hugh Caswall Tremenheere Dowding, C.B., C.M.G.

Group Captains to Air Commodores.—Charles Stuart Burnett, C.B., C.B.E., D.S.O.; Alfred Drummond Warrington-Morris, C.M.G., O.B.E.; Norman Duckworth Kerr MacEwen, C.M.G., D.S.O.; Hon. John David Boyle, C.B.E., D.S.O.

Wing Commanders to Group Captains.—John Tulloch Cull, D.S.O.; Norman Goldsmith, O.B.E.; Alexander Duncan Cunningham, C.B.E.; Geoffrey Rhodes Bromet, D.S.O., O.B.E.; Eric Roper Curzon Nanson, D.S.C., A.F.C.; Francis Knox Haskins, D.S.C.

Squadron-Leaders to Wing Commanders.—Frederick George Darby Hards, D.S.C., D.F.C.; Wilfred Ashton McClaughry, D.S.O., M.C., D.F.C.; Arthur Ashford Benjamin Thomson, M.C., A.F.C.; Rey Griffith Parry, D.S.O.; Charles Curtis Darley, A.M.; George Bentley Dacre, D.S.O.; Douglas Stewart, M.C., A.F.C.; Geoffrey Hilton Bowman, D.S.O., M.C., D.F.C.; Malcolm Henderson, D.S.O.; Lachlan Loudoun MacLean; Keith Rodney Park, M.C., D.F.C.

Flight-Lieutenants to Squadron-Leaders.—Alexander McRitchie Moffatt; Frederic Gunning Stammers, O.B.E.

Flying Officers to Flight-Lieutenants.—Ralph Horatio Woolnough Empson; Leopold Herbert Stewart; John Bullock; William Badley; Frank Henry Whitmore, M.B.E., D.S.C.; Charles Dollery, M.B.E.; Cecil Walter Harrison; Bernard Cheesman, M.B.E.; Frederick William Howard Clarke (Lieut. R.N.); Laurence Chase Sharman (Lieut.-Comdr. R.N.); Tom Oliver Bulteel (Lieut.-Comdr. R.N.).

Stores Branch

Squadron-Leaders to Wing Commanders.—Frederick Alfred Baldwin; William Boston Cushion, O.B.E.

Flight-Lieutenants to Squadron-Leaders.—Frank Anderson; Arthur Garrity.

Flying Officers to Flight-Lieutenants.—William Herbert Harrison; Herbert Parker; Norman Dainty; Christopher John Elliott; Hector Bell Smith Ballantyne; Richard Fraser Wilson; George John Maygothling; William Bernard Frederick; Albert Jabez Adams.

Accountant Branch

Flight-Lieutenants to Squadron-Leaders.—Albert Holmes; Reginald Byrne, M.C.

Flying Officers to Flight-Lieutenants.—Harold Alfred Murton; Cecil George Prior; Bernard Leslie Blofeld; Malcolm Harry Luker; Ronald George Dunstall Thomas; Derek James Sherlock; Cyril Warren Price; John Jeffrey Caiger; Frank Reginald Barton.

Medical Branch

Squadron-Leader to Wing Commander.—Andrew Grant, M.B.E., M.B., D.P.H.

Princess Mary's Royal Air Force Nursing Service

Senior Sister to Acting Matron.—Miss Bessie Cowie Simpson Forsyth.

London Gazette, December 18, 1928.

RESERVE OF AIR FORCE OFFICERS

General Duties Branch

The follg. are granted commns. as Flying Officers in Class C., on resignation of their permanent commns. (Dec. 11) :—N. Vintcent, D.F.C.; J. S. Newall. The follg. Pilot Officers are promoted to rank of Flying Officer (Dec. 13) :—R. Anderson, J. M. Greenwood, J. A. C. Northway. Pilot Officer M. B. Barclay resigns his commn. (July 6).

Medical Branch

Flight Lt. R. G. J. McCullagh relinguishes his commn. on completion of service (Oct. 4) (substituted for *Gazette* Nov. 27.)

AUXILIARY AIR FORCE

General Duties Branch

No. 600 CITY OF LONDON (BOMBING) SQUADRON.—The follg. to be Pilot Officer :—J. A. Brown (Aug. 1).

No. 602 CITY OF GLASGOW (BOMBING) SQUADRON.—The follg. Pilot Officer is promoted to the rank of Flying Officer :—D. F. McIntyre (Oct. 20).

No. 605 COUNTY OF WARWICK (BOMBING) SQUADRON.—The follg. Pilot Officers are promoted to rank of Flying Officer :—J. F. C. Brinton (Sept. 15) : G. V. Perry (Oct. 26).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified :—

General Duties Branch

Group Captains.—A. D. Warrington-Morris, C.M.G., O.B.E., to Air Ministry, for duty as Head of Signals Branch, 30.11.28. W. H. Primrose, D.F.C., to H.Q., Fighting Area, Uxbridge, for duty as Officer in Charge Administration, 24.1.29.

Wing Commander J. McCrae, M.B.E., to R.A.F. Depot, Uxbridge, 14.11.28.

Wing Commanders: V. O. Rees, O.B.E., to Aeroplane and Armament Experimental Estab., Martlesham Heath, pending taking over command, 23.11.28. J. E. A. Baldwin, D.S.O., O.B.E., to Central Flying Sch., Wittering, pending taking over command, 17.12.28. V. Gaskell-Blackburn, D.S.C., A.F.C., to No. 21 Group H.Q., West Drayton, for Engineer Staff duties, 10.12.28.

Squadron Leaders: H. I. Hanmer, D.F.C., to R.A.F. Depot, Uxbridge, 17.12.28. A. T. Williams, O.B.E., to H.Q., Fighting Area, Uxbridge, 17.12.28. R. H. M. S. Saundby, M.C., D.F.C., A.F.C., to H.Q., Wessex Bombing Area, Andover, 17.12.28. A. S. G. Lee, M.C., to No. 10 Sqdn., Upper Heyford, 17.12.28. B. J. Silly, M.C., D.F.C., to H.Q., Wessex Bombing Area, Andover, 17.12.28. T. C. Thomson, to H.Q., Fighting Area, Uxbridge, 31.12.28. R. E. G. Fulljames, M.C., to R.A.F. Base, Gosport, 14.12.28.

Squadron Leaders: C. E. H. Medhurst, O.B.E., M.C., to R.A.F. Depot, Uxbridge, 23.11.28. C. L. King, M.C., D.F.C., to No. 502 Sqdn., Aldergrove, 14.12.28. D. G. Donald, D.F.C., A.F.C., to No. 480 Flight, Calshot, 30.11.28. L. G. S. Payne, M.C., A.F.C., to No. 25 Sqdn., Hawkinge, 1.1.29. T. W. Elmhirst, A.F.C., to R.A.F. Training Base, Leuchars, 31.12.28.

Flight Lieutenants: A. P. M. Sanders, P. H. Mackworth, D.F.C., J. W. Jones and D. L. Blackford, to R.A.F. Depot, Uxbridge, 17.12.28. M. Moore, O.B.E., to No. 4 Sqdn., S. Farnborough, 17.12.28. A. MacGregor, D.F.C., to Air Ministry (D.O.I.), 31.12.28. A. D. Rogers, A.F.C., to No. 7 Sqdn., Worthy Down, 10.12.28. K. B. Lloyd, A.F.C., to R.A.F. Base, Calshot, 14.11.28. J. F. T. Barrett, D.S.O., D.F.C., and P. J. Clayson, M.C., D.F.C., to R.A.F. Depot, Uxbridge, 14.11.28.

Flight Lieutenants: A. P. Ledger, M.B.E., to H.Q., Air Defence of G. Britain, Uxbridge, 26.11.28. H. E. P. Wigglesworth, D.S.C., to No. 503 Sqdn., Waddington, 28.12.28.

Flying Officers: E. G. C. Stokes, to No. 5 Flying Training Sch., Sealand, 10.12.28. N. A. P. Pritchett, to No. 422 Flight, 14.12.28. T. Marchant, C. Snow, A. P. Marchant, M.B.E., D.S.M., G. Lacey, B. T. Crook, (Hon. Flight-Lieut.) U. C. de Burgh, K. C. Garvie, L. S. Potter and N. A. West, to R.A.F. Depot, Uxbridge, 14.11.28. J. H. Parry, to No. 9 Sqdn., Manston, 14.11.28. R. Matheson, to No. 101 Sqdn., Bircham Newton, 14.11.28.

Flying Officers: A. D. McDowall, to No. 100 Sqdn., Bicester, 7.1.29. G. N. Coward, to Elec. and Wireless Sch., Flowerdown, 17.12.28.

Pilot Officers: D. G. P. Fitzpatrick, to No. 23 Sqdn., Kenley, 26.11.28. K. F. T. Pickles, to No. 36 Sqdn., Donibristle, 28.12.28.

Stores Branch.

Wing Commander F. C. Williams, O.B.E., to H.Q., Coastal Area, for Air Staff Duties, 29.12.28.

Wing Commander F. C. Williams, O.B.E., to R.A.F. Depot, Uxbridge, 23.11.28.

Squadron Leaders: F. G. M. Williams, to No. 21 Group H.Q., West Drayton, 14.11.28. T. Fawdry, M.B.E., to H.Q., R.A.F., Cranwell, 14.11.28. W. C. Clark, to R.A.F. Depot, Uxbridge, 14.11.28.

Squadron Leader F. Tedman, M.B.E., to The Packing Depot, Ascot, 23.11.28.

Flight-Lieutenant L. H. Hiller, to No. 3 Stores Depot, Milton, 13.12.28.

Flying Officers: H. O. Fellowes, to R.A.F. Training Base, Leuchars, 14.11.28. G. H. Doveton, to R.A.F. Depot, Uxbridge, 14.11.28. R. M. Thomas, to No. 101 Sqdn., Bircham Newton, 29.12.28. E. G. Northway, to No. 12 Sqdn., Andover, 29.12.28.

Pilot Officers: M. J. Scott, to Central Flying Sch., Wittering, 11.12.28. P. Dennehy, to Armament and Gunnery Sch., Eastchurch, 12.12.28.

Accountant Branch

Squadron Leader R. Whyte, to H.Q., Air Defence of Gt. Britain, Uxbridge, 14.11.28.

Flight-Lieutenants: J. S. Griffiths and F. C. Chalmers, to R.A.F. Depot, Uxbridge, 14.11.28.

Flying Officers: Edward Smith, to R.A.F. Depot, Uxbridge, 14.11.28. Robert Cassels, to No. 101 Sqdn., Bircham Newton, 29.12.28.

Medical Branch

Flight-Lieutenants: L. I. Hyder, to No. 26 Sqdn., Catterick, 2.1.29. R. J. I. Bell, to R.A.F. Station, Biggin Hill, 12.12.28.

Flight Lieutenants: E. C. K. H. Foreman, to Princess Mary's R.A.F. Hospital, Halton, 28.11.28. P. D. Barling, M.B., to R.A.F. Base, Malta, 25.11.28, L. Freeman, to C. & M. Party, Basrah, 29.11.28. J. O. Priestley, D.M.R.E., to R.A.F. Depot, Uxbridge, 28.11.28.

Flying Officer J. C. Neely, B.A., to R.A.F. Station, Hornchurch, 10.12.28.

Flying Officer A. L. St. McClosky, to R.A.F. Depot, Uxbridge, 19.11.28.

Chaplains Branch

Rev. W. T. Rees, L.D., B.D., to No. 5 Flying Training Sch., Sealand, 3.1.29. Rev. M. K. MacLeod, M.A., F.S.A., and Rev. A. H. Dolphin, A.K.C., to H.Q., R.A.F., Cranwell, 14.11.28.

NAVAL APPOINTMENT

The following appointment was made by the Admiralty on December 19: Lieut. (Flying Officer, R.A.F.) C. N. Lentaigne, to *Courageous*.

ACCOUNTANT OFFICERS, ROYAL AIR FORCE

THE Air Ministry announces that an examination will be held in the latter part of March, 1929, under the scheme inaugurated in 1924 for the entry into the Accountant Branch of the Royal Air Force of qualified and experienced civil accountants. About 5 vacancies are likely to be available. The age limits are 22 to 26, extensible to 30 for certain candidates having previous service in the Forces.

The competition will be held in London by the Civil Service Commissioners, and will include (1) an examination in book-keeping and accountancy (excluding partnership and executorship accounts), the standard being that of the final examinations of the Institute of Chartered Accountants and the Society of Incorporated Accountants and Auditors; (2) an examination in English and general knowledge (essay, précis and questions to test knowledge of matters of general interest); and (3) an interview before a selection board at which stress will be laid on accounting experience and special weight given to the type of experience provided by articled service.

The emoluments of an Accountant Officer consist on the one hand of pay, and on the other of accommodation, fuel, light, rations and personal attendance provided in kind. When the latter are not available cash allowances are granted in lieu. The total of the pay and cash allowances of accountant officers range at present rates from about £400 a year for an officer on first entry to £1,132 a year for a married officer in the highest rank.

The Accountant Branch provides a permanent career. It is not, of course, possible to pledge the future, but so far as present foresight can show the Branch will be subject to no sudden changes affecting adversely the fortunes of its officers. The Air Force is at present a growing service, and the duties thrown on the Accountant Branch are such as will, so far as can be foreseen, always be required.

Officers enter the Branch with the rank of Pilot Officer and on probation. After twelve months' satisfactory service they are confirmed in their commission and promoted to Flying Officer. Thereafter promotion is by selection. The next ranks are Flight Lieutenant and Squadron Leader, and it is contemplated that officers who give satisfactory service should be promoted at least up to the latter rank, while a reasonable proportion would be able to expect promotion to the higher rank of Wing Commander and some to the rank of Group Captain. It must be understood that promotion depends on requirements and requirements on future circumstances, but the policy of the Air Ministry is directed to ensuring to Accountant Officers a career not inferior to that indicated above.

The length of the career provided depends on the rank attained. The compulsory retiring ages are for Squadron Leaders 53, for Wing Commanders 57 and for Group Captains 60; any officers not attaining the rank of Squadron Leader would be retired at the age of 50.

Application should be made to the Secretary, Air Ministry (S.7), Kingsway, London, W.C. 2, for the regulations and for application forms. Completed application forms should reach the Air Ministry by February 1 next, or at latest by February 15.

Royal Air Force Flying Accidents

THE Air Ministry regrets to announce that as the result of a collision in the air near Whittlesford between two Siskin machines of the Station Flight, Duxford, and No. 19 (Fighter) Squadron, on December 10, 203773, Flight Sergeant Osmond Cecil Tostevin, the pilot and sole occupant of one of the aircraft, was killed. The pilot and sole occupant of the other machine made a safe descent by parachute.

As the result of an accident south-west of Khartoum to a Fairey 3F machine of No. 47 (Bombing) Squadron, Khartoum, on December 26, 1928, Flying Officer Arnold William Alexander Ricks, the pilot of the aircraft, and the passengers, Capt. James Charles Doyle, Aeronautical Inspection Directorate, and 82899, Sergeant Charles Leonard Long, were killed.

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CORRESPONDENCE

THE "MOTOR CYCLE OF THE AIR"

[2180]. With reference to the Dickson "Beetle," of which particulars appeared in the *Aircraft Engineer* of December 27, I am sure that readers of FLIGHT, who are interested in small single-seaters would like to know more of the detail of the design of this machine, in support of the figures stated respecting the selling price.

It would appear that the machine in question is of more or less normal construction, and it is probably fair to say that *normal* construction in aeroplane work implies the manufacture of a considerable number of relatively small parts which have to be joined together for assembly into components.

Apart altogether from the question of the materials employed, the process of uniting one piece to another is a process which costs money, and the use of thin sheet metal tends rather to increase this item of expenditure, at least in a design involving numerous stiffeners.

Taking the fuselage, for instance, the construction can be either of normal form, *i.e.*, longerons, struts and ties of suitable section to carry the loads, in which case there does not seem any point in covering with metal; or else it must consist of a metal shell suitably stabilised to act as a rectangular tube without buckling. In this case, one would imagine that the stabilisation would have to split the surface up into panels of not more than 6 ins. square to do any good—the fuselage sides being flat, since the heaviest duralumin sheet permissible would probably be 24 S.W.G.

The same remarks apply to a certain extent to the wings and tail unit, except that the curvature of the surface would allow rather larger rectangles of unsupported skin.

If this be so, the amount of jointing—by riveting or otherwise—would be considerable and it is thought that labour costs alone would be too high to permit of the selling price mentioned, especially when the cost of the engine, profit, overheads, and so on, are taken into account.

For my part, I can see no hope for a £300 machine unless the number of parts comprising the machine and the assembly of them is very strictly limited, and for that reason alone have advocated the use of comparatively thick three-ply for the shell of both fuselage and wings and tail unit, thus reducing the number of formers and stiffeners to an absolute minimum.

Using three-ply in this way renders "spars" as such unnecessary. That is to say, instead of spars there would be light planks running transversely through the wings, etc., only to act as stabilisers to the skin. These need not be spindled or lightened, and the labour on them is thus confined to planing them up to shape.

Apart from these members, there would be a limited number of formers to keep the desired wing section, and these again need only be light planks planed to the required section. If the covering were of metal instead, the number of these items would be increased enormously.

The interest aroused by the discussion of the possibilities of a £300 machine, initiated by FLIGHT, has been remarkable, and I have received so much correspondence on the subject lately that I have gone more fully into the matter, revising my original scheme—which was outlined in FLIGHT recently—where experience has shown me that I was then too optimistic.

After carefully assessing the detail cost of each item of my own design—which is of the stressed skin type and therefore in my opinion, the cheapest form, I have come to the conclusion that £350 is the lowest price for moderate quantities, allowing only £80 for the cost of the motor. Whether or not this figure could be reduced to £300 if the production were equal to that of the "Moth" at the present time, I would rather not say, but I am quite sure that £250 is not a reasonable figure.

It is important to note that the figures for estimated costs which I had taken were based on the assumption that the machine could be constructed by an amateur, who would doubtless purchase materials of *good, but not necessarily of "aircraft" quality, from sources possibly independent of the aircraft industry.*

No inspection charges were included, either on raw material nor on the finished article, nor were there any allowances for design costs, testing, administrative or advertising charges, or any of those items which must of necessity be associated with an organisation capable of producing machines in quantities.

There is no relation, therefore, between the cost of building an aeroplane as a home-made article, with the selling price of an aeroplane produced by a manufacturing concern, and, further, an amateur's estimated costs are liable to omit the possibility of scrap and waste occurring through the necessity for experiment.

Perhaps your correspondent has overlooked inspection, overheads, etc., in quoting his prices for production in quantities.

CLIFFORD W. TINSON

AIR POST STAMPS

By DOUGLAS ARMSTRONG

(Editor of "The Stamp Collector")

EVIDENCE of aerial activity in many lands is forthcoming in the constant stream of new air mail stamps that flows in from every side. The year just drawn to its close has brought more additions to the air post collection than any similar period since the first Government issue was made in Italy eleven years ago. Even now we are only at the beginning of the development of the air mail service as a practical proposition, and the future of air post collecting as a hobby is therefore even brighter than its past.

As popular interest in aviation grows, more and more people are awakening to the extraordinary romantic and historical interest that lies in the collecting of air post souvenirs which tell the story of the conquest of the air. In America, especially, air post collecting has achieved a remarkable vogue. The flourishing American Air Mail Society already boasts a memberhip of nearly 400 and is drawing new recruits at the rate of 100 a month. A second organisation has recently been formed, known as the National Air Mail Society of Chicago, with a primary appeal to those who specialise in the fascinating field of United States air mail covers. The Aero Philatelic Club of Great Britain has entered upon its sixth successive season, whilst similar associations of air post collectors are doing useful service in France, Germany, Austria, Switzerland, India and Japan. All this bodes well for the prospects of what is rapidly becoming the most fashionable collecting pursuit of the day.

Roumanian Aero Stamps

Roumania is one of the latest European countries to provide special stamps for aerial postage. Up to now the service has been conducted by means of ordinary postage stamps, but a set of three values has lately been issued, comprising 1 lei brown, 2 lei blue and 5 lei carmine. Although several countries, Great Britain amongst them, lag behind in the matter of an air post issue, a recommendation that distinctive stamps should be employed for this purpose was adopted by the first Air Post Convention at The Hague last year, with a further proviso that such stamps might with advantage be uniformly printed in blue.

Canada's Air Post Service

Canada is coming well to the fore with her newly organised Government air mail service. A series of special flights were carried out in connection with the Canadian National Exhibition at Toronto on August 29, between that city and Quebec, by way of Kingston, Ottawa and Montreal. The purpose of these flights was not only to commemorate the golden jubilee of the Exhibition, but also to advertise the first National Aircraft Show which was held at the same time. A special cachet showing the figure of an airman with appropriate inscriptions was applied to all mail carried, and sufficiently prepaid at the rate of 5 cents for the first ounce and 10 cents for each subsequent ounce.

On September 15 the inaugural flight was due to take place of an international air mail service between Montreal and Albany (New York State), connecting with the United States air mail system, and a distinctive cachet was again to be provided for the occasion. Meanwhile a regular Canadian air mail stamp of 5 cents denomination, printed in brown and of striking design, made its appearance for use on this and other routes.

Peruvian Air Stamps

Nothing so gladdens the heart of the average collector as the knowledge that some piece in his collection has quite unexpectedly appreciated in value. Some time ago we announced that the provisionally overprinted air post stamp of Peru had become suddenly obsolete and that copies were changing hands for 15*s.* apiece, as compared with about 1*s.* 9*d.* previously. Now it appears that its successor, 50 centavos green with aerial map of the country and portrait inset in green, has gone the same way, having been withdrawn from circulation on July 31 last. As the total printing amounted to only 600,000 copies, the balance of which has been destroyed, it looks as though this stamp, too, is due for a rise in price. We understand that since August 1 last ordinary Peruvian postage stamps have been valid for prepayment of air post fees in that country, the Marconi Company, which owns a monopoly of the postal service in Peru, paying the air mail contractors by weight for the correspondence transmitted.

SIDE WINDS

WE have been asked by Messrs. Burch's, the R.A.F. Tailors of 401 Strand, W.C., to convey to officers of all ranks in the Royal Air Force their most sincere thanks for the generous support and kind recommendations that have been accorded them during the past year, and they tender their Heartiest Good Wishes for a Bright and Prosperous New Year with the very best of Good Luck in their (the R.A.F.'s) strenuous efforts and wonderful achievements.

Will our readers please note that "Aerofilms, Ltd." of Aerial House, the Hyde, Hendon, N.W.9, have changed their Telephone Number, which is now—Colindale 6581 (two lines).

PUBLICATIONS RECEIVED

Civil Aeronautics: Legislative History of the Air Commerce Act of 1926. U.S. Government Printing Office, Washington, D.C., U.S.A. Price 30 cents, post free.

Aluminium Sheet Metal Work. The British Aluminium Co., Ltd., Adelaide House, King William Street, London, E.C.4.

Royal Air Force Diary, 1929. Gale and Polden, Ltd., Wellington Works, Aldershot. Price: cloth, 1s. 6d. and 2s. net; leather, 3s. and 7s. 6d. net.

Les Coefficients Caracterisitiques des Turbo-Machines et des Machines Volantes. Travaux du Cercle d'Etudes Aerotechniques. I. Le Centre de Documentation Aeronautique Internationale de l'Aero Club de France, 35, Rue Francois 1er, Paris.

Illustrated Calender, 1929. Williamson Manufacturing Co., Ltd., Litchfield Gardens, Willesden Green, London, N.W.10.

An Explanation of the Facilities Provided by H.M. Government for Insuring and Financing Credits for Exports. Export Credits Guarantee Department, 9, Clements Lane, Lombard Street, London, E.C.4.

Aeronautical Research Committee Reports and Memoranda: No. 1154 (Ae. 319). Wind Tunnel Experiments on a Model Autogyro at Small Angles of Incidence. By C. N. H. Lock and H. C. H. Townend. March, 1928. H.M. Stationery Office, Kingsway, London, W.C.2. Price 2s. 6d. net.

Cabinet Construction (The Woodworker Series). Evans Brothers, Ltd., Montague House, Russell Square, London, W.C.1. Price 3*s.* 6*d.* net.

Woodwork Tools and How to Use Them (The Woodworker Series). By William Fairham. Evans Brothers, Ltd. Montague House, Russell Square, London, W.C.1. Price 3*s.* 6*d.* net.

Catalogues

Aircraft Engine Testing. Heenan and Froude, Ltd., Engineers, Worcester.

Model Aircraft. List No. 17. William E. Applyby (N/c) and Co., 217-219, Jesmond Road, Newcastle-on-Tyne. Price 1*s.* 6*d.*

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